



Confirmation of Product Type Approval

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product.

This certificate reflects the information on the product in the ABS Records as of the date and time the certificate is printed.

Pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) with expiration date of 09/NOV/2020. The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And; a Product Design Assessment (PDA) valid until 03/JUN/2020 subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Product Name: Power Supply Unit

Model Name(s): SDN 5-24-100C; SDN 10-24-100C; SDN 20-24-100C; SDN 40-24-100C; SDN 5-24-480C; SDN 10-24-480C

Presented to:

ASTEC POWER PHILIPPINES, INC.
MAIN ROAD CORNER ROAD J
CAVITE EXPORT PROCESSING ZONE
Philippines

Intended Service: Marine and Offshore Applications

Description: Power Supply Units

Tier: 3

Ratings: SDN 5-24-100C; Input: Voltage: 100-240 V AC, 2.0 A, 50/60 Hz; Output: 24V DC, 5.0 A, 120 W at 60 °C; 24V DC, 2.5 A, 60 W at 70 °C (Derated); Temperature: -25°C to 70°C; Hazardous Area Rating: Ex nA nC IIC T3 Gc; Degree of protection: IP20; SDN 10-24-100C; Input: Voltage: 100-240 V AC, 3.5 A, 50/60 Hz; Output: 24V DC, 10.0 A, 240 W at 60 °C; 24V DC, 5 A, 120 W at 70 °C(Derated); Temperature: -25°C to 70°C; Hazardous Area Rating: Ex nA nC IIC T4 Gc; Degree of protection: IP20; SDN 20-24-100C; Input: Voltage: 100-240 V AC, 5.6 A, 50/60 Hz; Output: 24V DC, 20 A, 480 W at 60 °C; 24V DC, 10 A, 240 W at 70 °C(Derated); Temperature: -25°C to 70°C; Hazardous Area Rating: Ex nA nC IIC T4 Gc; Degree of protection: IP20; SDN 40-24-100C; Input: Voltage: 100-240 V AC, 12A, 50/60 Hz; Output: 24V DC, 40 A, 960 W at 60 °C; 24V DC, 20 A, 480 W at 70 °C(Derated); Temperature: -25°C to 70°C; Hazardous Area Rating: Ex nA nC IIC T3 Gc; Degree of protection: IP20; SDN 5-24-480C; Input: Voltage: 380-480 V AC, 0.4 A/Phase, 50/60 Hz; Output: 24V DC, 5.0 A, 120 W, 24V DC, 2.5 A, 60 W at 70 °C(Derated); Temperature: -25°C to 70°C; Hazardous Area Rating: Ex nA nC IIC T4 Gc; Degree of protection: IP20; SDN 10-24-480C Input: Voltage: 380-480 V

	AC, 0.7 A/Phase, 50/60 Hz; Output: 24V DC, 10 A, 240 W, 24V DC, 5 A, 120 W at 70 °C(Derated); Temperature: -25°C to 70°C; Hazardous Area Rating: Ex nA nC IIC T4 Gc; Degree of protection: IP20;
Service Restrictions:	Unit Certification is not required for this product. 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. Power Supplies shall be installed within an IP54 minimum enclosure, where used in a hazardous area application, that encloses exposed current-carrying parts and has been evaluated and is suitable for IECEx.
Comments:	Duplicate PDA resides with Astec Power Philippines Inc. - PHILIPPINES. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
Notes / Documentation:	Drawing No. ExTR Report Package Cover Page, ExTR Report Package, Revision: -, Pages: 1 Drawing No. IECEx UL 15.0013U Issue 0, IECEx UL 15.0013U Issue 0, Revision: -, Pages: 1 Drawing No. IECEx UL 15.0015U Issue 0, IECEx UL 15.0015U Issue 0, Revision: -, Pages: 1 Drawing No. IECEx UL 15.0017U Issue 0, IECEx UL 15.0017U Issue 0, Revision: -, Pages: 1 Drawing No. IECEx UL 15.0018U Issue 0, IECEx UL 15.0018U Issue 0, Revision: -, Pages: 1 Drawing No. IECEx UL 15.0022U Issue 0, IECEx UL 15.0022U Issue 0, Revision: -, Pages: 1 Drawing No. IECEx UL 15.0023U Issue 0, IECEx UL 15.0023U Issue 0, Revision: -, Pages: 1 Drawing No. US UL ExTR 15.0020 00 Report Package, US UL ExTR 15.0020 00 Report Package, Revision: -, Pages: 1 Drawing No. US UL ExTR 15.0021 00 Report Package, US UL ExTR 15.0021 00 Report Package, Revision: -, Pages: 1 Drawing No. US UL ExTR 15.0022 00 Report Package, US UL ExTR 15.0022 00 Report Package, Revision: -, Pages: 1 Drawing No. US UL ExTR 15.0024 00 Report Package, US UL ExTR 15.0024 00 Report Package, Revision: -, Pages: 1 Drawing No. US UL ExTR 15.0027 00 Report Package, US UL ExTR 15.0027 00 Report Package, Revision: -, Pages: 1 Drawing No. 705-002942-0000, Rev. AE, "SDN 20-24-100CR" Drawing No. 710-003315-0001, Rev. AB, "SDN 5-24-100CR" Drawing No. 710-004032-0000, Rev. AB, "SDN 10-24-480C" Drawing No. 710-004038-0000, Rev. AB, "SDN 5-24-480C" Drawing No. 705-002258-0001, Rev. AA, "SDN 10-24-100CR" Drawing No. 705-002504-0002, Rev. AB, "SDN 40-24-100C" Drawing No. E61379_V4_S2, Rev. -, UL File SDN 5-24-100C Drawing No. E61379_V4_S1, Rev. -, UL File SDN 10-24-100C Drawing No. E61379_V4_S4, Rev. -, UL File SDN 20-24-100C and 40-24-100C Drawing No. E61379_V4_S7, Rev. -, UL File SDN 5-24-480C and 10-24-480C Drawing No. ATEX_SDN 10-24-100C_12ATEX1154772U, Rev. 3, ATEX_SDN 10-24-100C_12ATEX1154772U Drawing No. ATEX_SDN 10-24-480C_11ATEX1105449U, Rev. 2, ATEX_SDN 10-24-480C_11ATEX1105449U Drawing No. ATEX_SDN 20-24-100C_14ATEX1350833U, Rev. 2, ATEX_SDN 20-24-100C_14ATEX1350833U Drawing No. ATEX_SDN 40-24-100C_13ATEX125573U, Rev. 2, ATEX_SDN 40-24-100C_13ATEX125573U Drawing No. ATEX_SDN 5-24-100C_11ATEX1133501U, Rev. 2, ATEX_SDN 5-24-100C_11ATEX1133501U Drawing No. ATEX_SDN 5-24-480C_11ATEX1057365U, Rev. 2, ATEX_SDN 5-24-480C_11ATEX1057365U
Term of Validity:	This Product Design Assessment (PDA) Certificate 15-HS1366009-1-PDA-DUP, dated 25/Sep/2015 remains valid until 03/Jun/2020 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.
ABS Rules:	Rules for Conditions of Classification, Part 1 - 2015: Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following: Steel Vessels (2015): 4-8-3/13.1, 4-9-2/5, 4-8-4/27.1; Steel Vessels Under 90 Meters (295 feet) in Length (2015): 4-6-3/11.3; Offshore Support Vessels (OSV Rules) (2015): 4-8-3/13.1, 4-9-2/5, 4-8-4/29.1; Rules for Conditions of Classification, Offshore Units and Structures (2015): 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following: Mobile Offshore Drilling Units (2015): 4-3-3/9.1.2,

National Standards: UL 508(17th Ed), UL 60079-0(5th Ed), UL 60079-15(3rd Ed), UL 60950-1(2nd Ed)
CAN/CSA 107.1-01(3rd Ed), CAN/CSA 60079-0:11(2nd Ed),
CAN/CSA60079-15:12(1st Ed), CAN/CSA 60950-1-07(2nd Ed)

International Standards: IEC60079-0:2011(6th Ed), IEC60079-15:2010(4th Ed);
EN60079-0:2012+A11:2013, EN60079-15:2010, IEC60950-1(2nd Ed),
EN60950-1(2nd Ed)

Government Authority:

EUMED:

Others:

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA-DUP	15-HS1366009-1-PDA-DUP	29/SEP/2015	03/JUN/2020



ABS Programs

ABS has used due diligence in the preparation of this certificate and it represents the information on the product in the ABS Records as of the date and time the certificate was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.