



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 30/MAY/2018. 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 31/OCT/2021 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: Battery Charger
Model Name(s): MicroGenius 2

Presented to:

STORED ENERGY SYSTEMS, LLC
1840 INDUSTRIAL CIRCLE
United States

Intended Service: Marine and Offshore Applications

Description: MicroGenius 2: Switchmode, regulated, filtered, microprocessor-controlled, current limited battery charger designed for heavy-duty industrial service. Primary application: quick recharge and long-life maintenance of engine start batteries and ultracapacitors. Refer to the attached sheet for Model Series Designation.

Ratings: Output Voltage: 12 or 24 VDC Nominal; Output Power: 180 W, 300W, or 450W
Input Voltage: 100-240VAC Input Frequency: 50/60 Hz; Operational temperature at full rated output: -40 °C to +55 °C for 180W; -40 °C to +50 °C for 300W; -40°C to +40°C for 450W Enclosure: IP 22 aluminum/stainless steel enclosure;

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. Not suitable for installation in hazardous areas.

Comments: The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. 1. End user must use output cables that have sufficient current carrying capacity as per ABS Steel Vessel Rules 4-8-2/7.7.1.

Notes / Documentation: Drawing No. COMPLIANCE SPEC, MicroGenius 2, Pages: 7 Drawing No. 2DCAD-MG2-STD-ENC, Charger drawing, Revision: B, Pages: 2 Drawing No. Alarm list, ABS alarm reqs mapped to MG2 charger, Pages: 1 Drawing No. MG2_ABS_Discharge_2016-09-09, Charge curves, Pages: 89 Drawing No.

MG2_ABS_Recharge_2016-09-09, MG2_ABS_Recharge_2016-09-09, Pages: 71 Drawing No. MicroGenius_2_Model_Designation, Pages: 1 Drawing No. SENS IP 22 Test, SENS IP 22 Test Report, Pages: 10 Drawing No. UL File E109740 Project 4787560097, UL_Reverse_Polarity_Test, Pages: 1 Drawing No. UL Project 4787560097, SENS UL NofA-4787560097-Sep-20-2016, Pages: 1 Drawing No. EMI Test Lab LLC EMC Test Report, Revision: 1.0, Pages 65. Drawing No. ISO_Platinum_Cert_2008_RevD, ISO_Platinum_Cert_2008_RevD, Pages: 1 Drawing No. ISO_SENS RA Report, ISO_SENS RA Report, Pages: 1 Drawing No. 2016_ABS_Certificate_Manufacturing_Assessment, Pages: 1

Term of Validity:

This Product Design Assessment (PDA) Certificate 16-HS1570634-PDA, dated 01/Nov/2016 remains valid until 31/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.

ABS Rules:

The Rules for Conditions of Classification, Part 1 2016 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following: 2016 Steel Vessel Rules: 4-8-3/1.11.1, 4-8-3/5.9; 2016 Offshore Support Vessels Rules: 4-8-3/1.11.1, 4-8-3/5.9; 2016 Steel Vessels Under 90M length: 4-6-3/3.1.3(a), 4-6-4/7.19. The Rules for Conditions of Classification, Part 1 2016 Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following: 2016 Mobile Offshore Drilling Unit Rules: 4-3-3/3.1.1(a), 6-1-7/9.17.

National Standards:

UL 1236 Battery Chargers for Charging Engine-Starter Batteries, Edition 8 (UL File E109740 and EX6409).

International Standards:

CSA 22.2 No. 107.2 (2011), Battery Chargers (UL File E109740); IEC 60529 Degrees of Protection Provided by Enclosures (IP Code), 1989+A1:1999; EN 61000-6-4: 2007+A1:2011 Electromagnetic compatibility (EMC). Generic standards; EN 61000-6-2: 2005 Electromagnetic compatibility (EMC). Generic standards. Immunity for industrial environments.

Government Authority:

EUMED:

Others:

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	16-HS1570634-PDA	01/NOV/2016	31/OCT/2021



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.