



## Confirmation of Product Type Approval

**Company Name:** STORED ENERGY SYSTEMS, LLC

**Address:** 1840 INDUSTRIAL CIRCLE CO 80501 United States

**Product:** Battery Charger

**Model(s):** MicroGenius S2 and S4

**Endorsements:**

<b>Certificate Type</b>	<b>Certificate Number</b>	<b>Issue Date</b>	<b>Expiry Date</b>
Product Design Assessment (PDA)	23-2367895-PDA	10-MAR-2023	09-MAR-2028
Manufacturing Assessment (MA)	23-5820693	15-MAY-2023	30-MAY-2028
Product Quality Assurance (PQA)	NA	NA	NA

### **Tier**

3 - Type Approved, unit certification not required

### **Intended Service**

Marine and Offshore Applications

### **Description**

MicroGenius S2 and S4: 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.

### **Ratings**

Output Voltage: 12 or 24 VDC Nominal

Output Current: 15-60 Amps

Input Voltage: 90-265VAC

Input Frequency: 47/63 Hz

Input Current: S2: 8Amps Max (at 100 VAC), S4: 16 Amps Max (at 100 VAC)

Operational temperature meets full specification: -40 °C to +40 °C

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.

- End user must use output cables that have sufficient current carrying capacity as per ABS Marine Vessel Rules 4-8-2/7.7.1.

### Notes, Drawings and Documentation

COMPLIANCE SPEC\_MicroGenius S2 and S4, Specification, Date: February 2 2018, Pages: 4

Drawing No. 2DCAD-S2-STD, 2DCAD, S2, STANDARD, Revision: A, pages:1

Drawing No. 2DCAD-S4-STD, 2DCAD, S4, STANDARD, Revision: A, pages:1

Drawing No. ABS alarm reqs mapped to S2 and S4 charger, Pages:1

Drawing No. MG2\_ABS\_Discharge\_2016-09-09, MG2\_ABS\_Discharge

Drawing No. MG2\_ABS\_Recharge\_2016-09-09, MG2\_ABS\_Recharge

Drawing No. S2\_ABS\_Discharge\_2017\_09\_22, S2\_ABS\_Discharge

Drawing No. S2\_ABS\_Recharge\_2017\_09\_25, S2\_ABS\_Recharge

Drawing No. S4\_ABS\_Disharge\_200Ahr\_2017\_09\_19, S4\_ABS\_Disharge\_200Ahr

Drawing No. S4\_ABS\_Recharge\_200Ahr\_2017\_09\_20, S4\_ABS\_Recharge\_200Ahr

Drawing No. S4\_ABS\_Disharge\_310Ahr\_2017\_10\_03, S4\_ABS\_Disharge\_310Ahr

Drawing No. S4\_ABS\_Recharge\_310Ahr\_2017\_10\_04, S4\_ABS\_Recharge\_310Ahr

Drawing No. MicroGenius\_S2\_and\_S4\_Model\_Series\_Designation, pages:2

Drawing No. SENS S2 IP22 Test, MICROGENIUS S2 IP22 DRIP AND SOLD INTRUSION TEST, pages:15

Drawing No. SENS S4 IP22 Test, MICROGENIUS S4 IP22 DRIP AND SOLD INTRUSION TEST, pages:13

Drawing No. UL\_Reverse\_Polarity\_Test\_S2\_and\_S4, pages:2

Drawing No. SENS NofA-4788116939-Sep-28-2017, NOTICE OF COMPLETION AND AUTHORIZATION TO APPLY THE UL MARK, pages:1

Drawing No. MicroGenius\_S2\_and\_S4, pages:128

### Term of Validity

This Product Design Assessment (PDA) Certificate remains valid until 09/Mar/2028 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.

**ABS Rules**

The Rules for Conditions of Classification, Part 1 2023 Marine Vessel Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

2023 Marine Vessel Rules: 4-8-3/1.11.1, 4-8-3/5.9;

The Rules for Conditions of Classification, Part 1 2023 Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following:

2023 Mobile Offshore Unit Rules: 4-3-3/3.1.1(a), 6-1-7/9.17.

**International Standards**

CSA 22.2 No 107.2, R2021, Battery Chargers (UL File E109740);

IEC 60529, Degrees of Protection Provided by Enclosures (IP Code) IEC 60529:1989+A1:1999+A2:2013;

EN 61000-6-4:2019. Electromagnetic compatibility (EMC). Generic standards;

EN 61000-6-2:2019 Electromagnetic compatibility (EMC). Generic standards. Immunity for industrial environments.

**EU-MED Standards**

NA

**National Standards**

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

**Government Standards**

NA

**Other Standards**

NA



A handwritten signature in black ink, appearing to read 'James J. White', is written over a light blue grid background.

Corporate ABS Programs  
American Bureau of Shipping  
Print Date and Time: 05-Jun-2023 3:08

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 is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

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 prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. 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.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

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.

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.