



Marine & Offshore

Certificate number: 58531/A0 BV

File number: AP 4934

Product code: 2658I

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

SMARTGEN (Zhengzhou) Technology Co., Ltd.
Zhengzhou - CHINA

for the type of product

GENERATOR CONTROL AND PROTECTION UNITS

Generator Control Module HMC9510, HMC6, HMC6110NC, HMC4000 and HMC4000RM

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships.

EC Code : 31

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 21 Dec 2025

For Bureau Veritas Marine & Offshore,

At BV SHANGHAI, on 21 Dec 2020,

Jennifer Zhang



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

1.1 - Parallel and Protection Controller - HMC9510

Designed for manual/auto parallel system generators with similar or different capacity or single gen-set constant power output and shore power (mains) parallel.

Operation Voltage	8 to 35 Vdc
Display	480 x 272 LCD backlit display
Operation Temperature	-25 to 70°C
IP Level	IP55

1.2 - Power Management Module - HMC6

A standard power management system for marine applications. The system carries out generator control, supervision and protection functions.

Operation Voltage	8 to 35 Vdc
Input/Output	Freq IN/Volt IN : -10 to 10 Vdc Gov Out/AVR Out : -10 to 10 Vdc, -20 to 20 mA
Operation Temperature	-25 to 70°C
IP Level	IP55

1.3 - Mairne Genset Controller - HMC6110NC

Marine Genset Controller with integrating digital, intelligent and network technique. Designed for automatic control and monitoring system of generator-set.

Operation Voltage	8 to 35 Vdc
Display	132 x 64 LCD backlit display
Operation Temperature	-25 to 70°C
IP Level	IP55

1.4 - Marine Genset Controller & Remot Monitoring Controller - HMC4000 & HMC4000RM

Integrates digitization, intelligentization and network technology, genset automation and monitor control system of single unit to achieve remote start/stop, data measurement, alarm protection and "three remote" functions

Operation Voltage	8 to 35 Vdc
Display	132 x 64 LCD backlit display
Operation Temperature	-25 to 70°C
IP Level	IP55

2. DOCUMENTS AND DRAWINGS :

SmartGen:

- HMC9510 Genset Parallel Unit Technical Specification, No. ZZ-SJ-SS004, dated 06-07-2012.
- HMC9510 Genset Parallel Unit Electrical Principle & External Wiring Diagram, No. ZZ-TY-GYL038, dated 20-07-2012.
- HMC9510 Genset Parallel Unit User Manual, Version 1.0, dated 08-03-2012.
- HMC6 Power Management Module Technical Specification, No. ZZ-SJ-SS010, dated 16-05-2014.
- HMC6 Power Management Module Electrical Principle & External Wiring Diagram, No. ZZ-TY-GYL160, dated 08-01-2014.
- HMC6 Power Management Module User Manual, Version 1.0, dated 21-01-2014.
- HMC6110NC Marine Genset Controller Technical Specification, No. ZZ-SJ-SS016, dated 13-03-2017.
- HMC6110NC Marine Genset Controller Electrical Principle & External Wiring Diagram, No. ZZ-TY-GYL532, dated 16-03-2017.
- HMC6110NC Marine Genset Controller User Manual, Version 1.0, dated 18-06-2016.
- HMC4000/HMC4000RM Technical Specification, No. ZZ-SJ-SS017, dated 06-03-2017.
- HMC4000/HMC4000RM Electrical Principle & External Wiring Diagram, No. ZZ-TY-GYL533, dated 16-05-2017.
- HMC4000 Marine Genset Controller User Manual, Version 1.0, dated 07-08-2017.
- HMC4000RM Remote Monitoring Controller User Manual, Version 1.0, dated 07-08-2017.

3. TEST REPORTS :

Wuhan Environment and Reliability Test Center:

- Environmental Test Report No. CHKS2018-0116, dated 20-03-2018.
- EMC Test Report No. Test 2017-286, dated 15-12-2017.

China Shipbuilding Industry Environment and Reliability Test Centre for Electric and Electronic Equipment:

- EMC Test Report No. Ship Test EM2020-019, dated 29-05-2020.
- Dry Heat Test Report No. Ship Test ER 2020-019, dated 05-06-2020.

SmartGen:

- Environmental Test Report , witnessed on 15-06-2020.
- Genset Parallet Unit HMC9510 Performance test report No. ZZ-ZL-003-04, witnessed on 15-06-2020.
- Protection and Power Management HMC6 Performance test report No. ZZ-ZL-003-05, witnessed on 15-06-2020.
- HMC4000 & HMC4000RM Performance test report No. ZZ-ZL-003-06, witnessed on 15-06-2020.
- Marine Genset Controller HMC6110NC Performance test report No. ZZ-ZL-003-07, witnessed on 15-06-2020.
- Enclosure Protection IP55 Test report of HMC6/HMC4000/HMC4000RM/HMC6110NC/HMC9510, witnessed on 16-06-2020.

4. APPLICATION / LIMITATION :

- 4.1 - BUREAU VERITAS Rules and Regulations for the Classification of Steel Ships.
- 4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**
- 4.3 - BUREAU VERITAS Environmental Category, **EC Code: 31**
- 4.4 - The equipment fulfils the EMC requirements for installation in General Power Distribution Zones.
- 4.5 - The equipment, once installed on board ship, is to be tested in accordance with the above referred Regulations under the supervision of a Society's Surveyor.
- 4.6 - Depending on the application, submission of documents, Factory Acceptance and On-board Tests are to be performed in accordance with requirements for programmable electronic system categories II or III.
- 4.7 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev 7.

5. PRODUCTION SURVEY REQUIREMENTS :

- 5.1 - The above products are to be supplied by **SMARTGEN (Zhengzhou) Technology Co., Ltd.** in compliance with the type and the requirements described in this certificate.
- 5.2 - This type of product is within the category IBV of Bureau Veritas Rule Note NR320.
- 5.3 - BV product certificate is required.
- 5.4 - For information, **SMARTGEN (Zhengzhou) Technology Co., Ltd.** has declared to Bureau Veritas the following production site(s):

SMARTGEN (Zhengzhou) Technology Co., Ltd.
No.28 Jinsuo Rd.,
Zhengzhou City,
Henan Province,
China

6. MARKING OF PRODUCT :

- Trade name.
- Date of manufacture and serial number.
- Equipment type or model identification under which it was type-tested.
- \ or @ conformity marking, as relevant.

7. OTHERS :

It is **SMARTGEN (Zhengzhou) Technology Co., Ltd.**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

*** END OF CERTIFICATE ***