



中国船级社  
CHINA CLASSIFICATION SOCIETY

证书格式号/Form: T01.02-  
HB000067

型式认可证书  
CERTIFICATE OF TYPE APPROVAL

证书编号/Certificate No. WH18T00036\_05

兹证明本证书所述制造厂生产的下列产品能够满足下面列明认可标准的要求。

This is to certify that the following products produced by the manufacturer stated in the certificate can meet the requirements of the approval standards listed below.

认可产品/ Product Approved

发电机保护与电站自动控制装置

AUTOMATIC CONTROL EQUIPMENT FOR GENERATOR PROTECTION AND GENERATING PLANT

制造厂/ Manufacturer

郑州众智科技股份有限公司

Smartgen Technology Co.,Ltd

郑州高新技术开发区金梭路28号

No.28Jinsuo Road, Hi-tech Industries Development Zone, Zhengzhou



附加标志/ Notations

无/Nil.

认可标准/ Approval Standard

1. 中国船级社《钢质海船入级规范》(2018)及其修改通报第4篇 第3章  
Chapter 3, Part Four of China Classification Society Rules for the Classification of Sea-going Steel Ships 2018 and its Amendments

证书有效期至/ This Certificate is valid until

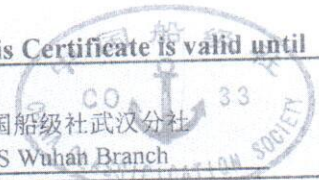
2022年7月23日 / Jul. 23, 2022

发证机构  
Issued by

中国船级社武汉分社  
CCS Wuhan Branch

签发日期  
Date

2018年12月21日  
Dec. 21, 2018



本证书根据中国船级社《钢质海船入级规范》及有关规定签发。关于证书的有关规定见本证书背面的说明。当本证书包括多页纸张时，则所有证书页为一个整体，必须同时使用。每一页证书均须由本社盖章方为有效，证书复印件无效。任何单位和个人均不应摘录或节选本证书的部分内容。本认可证书不代表本社对个体产品质量的检验。有关各方对所持证书的真实性有疑问时，可以向本社检验机构咨询。  
This Certificate is issued pursuant to the Rules for Classification of Sea-going Steel Ships and related procedures of the Society. Refer to the back of the certificate for detailed requirements of the certificate. When the certificate consists of more than one page, all pages of the certificate are taken as a whole and are used simultaneously. No certificate page is valid without bearing the stamp of the Society and no copied form of the certificate is regarded as valid. Any part of the certificate is not to be extracted or abridged by any unit or individual in any form. This approval certificate does not constitute the inspection of the Society about the quality of the unit/batch product. Related parties who are doubted about the authenticity of the certificate may inquire of the Society or its offices.

CCS



中国船级社总部/CCS headquarters: 北京市东直门南大街9号船检大厦 邮编: 100007 电话/Tel: +86(10)58112288 传真/Fax: +86(10)58112811  
CCS Mansion, 9 Dongzhimen Nan Da Jie, Beijing 100007, China 网址/Web Site: <http://www.ccs.org.cn>  
本地检验机构/CCS Local Office: 中国船级社武汉分社 CCS Wuhan Branch 电话/Tel: +86(27)85862521 传真/Fax: +86(27)85856274

WH71483525  
No. 18222777

产品明细/ Product Description

发电机保护与电站自动控制装置/Automatic Control Equipment for Generator Protection and Generating Plant  
产品型号/Type : 详见附件 | See additional page

批准的图纸和设计计算书/ Approved Drawings and Design Calculations

图纸批准号/ Drawings Approval No. : WH18A00384

产品认可试验报告/ Approval Test Report

试验报告编号/Test Report No. : CHKS2018-0116  
试验报告日期/Test Report Date : 2018-03-20  
试验单位/ Laboratory : 中国船舶工业武汉机电产品环境与可靠性试验检测中心  
Wuhan Environment and Reliability Test Center for  
Mechanical and Electrical Products of China  
Shipbuilding Industry Corporation

试验单位地址/ Test Address : 武汉市江夏区藏龙岛开发区藏龙大道三号  
NO.3 Canglong street, Jiangxia district, Wuhan, P.R.  
China

试验报告编号/Test Report No. : 检测2017-286  
试验报告日期/Test Report Date : 2017-12-15  
试验单位/ Laboratory : 中国船舶工业武汉机电产品环境与可靠性试验检测中心  
Wuhan Environment and Reliability Test Center for  
Mechanical and Electrical Products of China  
Shipbuilding Industry Corporation

试验单位地址/ Test Address : 武汉市江夏区藏龙岛开发区藏龙大道三号  
NO.3 Canglong street, Jiangxia district, Wuhan, P.R.  
China

试验报告编号/Test Report No. : ZZ-ZL-003-7  
试验报告日期/Test Report Date : 2018-11-29  
试验单位/ Laboratory : 郑州众智科技股份有限公司  
Smartgen (Zhengzhou) Technology Co.,Ltd.  
试验单位地址/ Test Address : 郑州高新区金梭路28号  
No.28 Jinsuo Road, Zhengzhou, P.R.China

试验报告编号/Test Report No. : ZZ-ZL-003-10  
试验报告日期/Test Report Date : 2018-11-29  
试验单位/ Laboratory : 郑州众智科技股份有限公司  
Smartgen (Zhengzhou) Technology Co.,Ltd.  
试验单位地址/ Test Address : 郑州高新区金梭路28号  
No.28 Jinsuo Road, Zhengzhou, P.R.China

试验报告编号/Test Report No. : ZZ-ZL-003-11  
试验报告日期/Test Report Date : 2018-11-29  
试验单位/ Laboratory : 郑州众智科技股份有限公司  
Smartgen (Zhengzhou) Technology Co.,Ltd.  
试验单位地址/ Test Address : 郑州高新区金梭路28号  
No.28 Jinsuo Road, Zhengzhou, P.R.China

产品适用范围/ Application of the Product

船舶与海上设施/Ships and Offshore Installations

认可保持条件/ Maintenance Requirements of Approval

1. 型式认可后, 如果产品及其重要零部件的设计、所用材料或制造方法有所改变, 且影响到产品的主要特性、特征; 或产品的性能指标有所更改, 且超过认可的范围, 则有关图纸和文件应经检验机构审批。并在检验机构认为必要时, 经本社检验人员见证有关试验和进行检查, 其结果应能证实仍符合认可条件。

After type approval, if there are changes to the design, materials used or manufacturing method of the product and important components and such changes affect major characteristics and properties of the product, or property indexes of the product are changed and exceed the scope of approval, related drawings and documents are to be examined and approved by the concerned survey office. Where deemed necessary by the survey office, the surveyor to the Society will go to witness relevant tests and conduct inspection and the results should be able to demonstrate compliance with the approval conditions.

2. 工厂的质量管理体系应保持有效运行, 并且与认可时一致。如果质量管理体系发生改变, 应经原体系认证机构审核并报告本社批准。

The quality management system of the factory shall be ensure effective operation, and shall be the same as the situation of approval. If there are any changes to the quality management system, auditing of the original certification organization for quality management system and the society's approval shall be obtained.

3. 认可证书有效期内, 如果出现可能导致本社取消认可的情况, 工厂应及时采取有效的纠正措施。Within the validity of the approval certificate, if cases occur that may cause the Society to withdraw the approval, the manufacturer should take corrective actions in a prompt and effective manner.



4. 在认可证书有效期内, 本社检验人员可在未经事先通知的情况下对工厂的产品制造过程进行审核, 以验证产品的生产是否符合业经本社批准的图纸和文件。工厂应予以配合。  
Within the validity of the approval certificate, the surveyor to the Society may pay unannounced audit to the manufacturing process of the product in order to confirm whether it is in compliance with the drawings and documents approved by the Society. The factory should provide an active cooperation and necessary for the surveyor.
5. 如果属于获得型式认可B 模式证书, 且无需颁发船用产品证书/等效证明文件的情况, 证书获得者应接受本社每年一次的定期审核, 定期审核日为认可证书期满之日对应的每一周年日, 检查工作可在周年日的前后三个月内进行。  
If belong to the situation of the product has type approval mode B certificate, and marine product certificate/equivalent document is not necessary, those who have obtained the certificate should be subject to periodical audit every year. The periodical audit should be carried out within 3 months before and after the anniversary date which corresponds to the date of expiry of the relevant.

#### 认可后的产品检验方式/ Method of Product Inspection after Approval

按照规范只认可不进行产品检验的产品/The product approved only in term of the rules:  
认可后的产品检验由制造厂按本社批准的产品检验计划进行检验, 经检验合格后由制造厂签发合格证明, 并连同该产品的本社认可证书复印件一并交付用户, 制造厂对产品符合公约、法规、本社规范和本社认可的标准规定负责。  
After approval, product inspection should be carried out by the Manufacturer in accordance with the product inspection scheme approved by the Society. Upon satisfactory inspection, and the Quality Certificate issued by the Manufacturer should be provided to the purchaser together with the copy of the approval certificate issued by the Society. The manufacturer should take responsibility for the product being in compliance with the convention, statutory regulation, the Society rules and the standard accepted by the Society.

#### 对于原材料和零部件的检验要求/ Inspection Requirements for Materials and Components

产品如下原材料和零部件应由本社认可的制造厂生产/The following materials and components of the product should be manufactured by the factory approved by the Society:无/Nil.

产品如下原材料和零部件应经本社检验/The following materials and components of the product should be inspected by the Society:无/Nil.

产品如下原材料和零部件的制造厂清单, 经本社批准方可变更/The list of manufacturer for the following materials and components of the product should not be changed without the Society's approval:贴片集成模块/Chip integration module.

#### 责任声明/Statement of Responsibility

本社的认可不影响、替代与本社授权或检验无关的各方对上述工厂的认可和发证, 并且不对与本社授权或检验无关的各方负责, 不承担其未经应允而承认、接受本社认可所导致的法律和经济责任。  
The approval of the Society does not affect and replace any approval and certification of the manufacturer by any parties that bear no relation with this Society's authorization or survey and therefore takes no responsibility for these parties. The Society does not undertake any legal and economic liabilities arising from accepting this Society's certificate without prior permission from this Society.

#### 其他/Others

本证书由原型式认可证书(No. WH14T00063\_02)变更并换新。  
This certificate is modified and renewed from the previous Type Approval Certificate No. WH14T00063\_02.

本社已审核了产品厂无石棉声明, 但本社的审核不免除产品厂按照合同关系向订货方保证产品无石棉的责任。  
The declaration of asbestos-free submitted by manufacturer has been reviewed by the Society. However, liability of the manufacturer to guarantee the products are asbestos-free to purchaser under contract will not be exempted.

中国船级社武汉分社  
CCS Wuhan Branch



\*\*\*\*\*本证书正文完/ End of Text\*\*\*\*\*

注: 本证书含有附页, 共1页

Note: The certificate is attached with 1 additional page(s)



## 产品明细/Product description:

## 1、产品名称：电子电位器

Name of product: Electronic potentiometer

型号/Type: HEP300

工作电压/Operating voltage: DC24/DC12 V

输入信号电压/Input voltage: DC±10V

电压输出信号/Output voltage: DC±10V

电流输出信号/Output current: DC±20mA

PWM 输出信号/PWM Output: 6V, 500Hz(0-100)% 脉宽/Pulse: Width/PWM

下垂 PWM 输出信号/Droop PWM Output: 6V, 500Hz(0-100)% 脉宽/Pulse: Width/PWM

输入到输出响应时间/Time from input to output: &lt;100ms

## 2、产品名称：功率均分模块

Name of product: Power average module

型号/Type: HLS300

工作电压/Operating voltage: DC8V~D35V

交流输入电压/AC input voltage: AC50V~ AC620V (ph-ph)

交流输入频率 AC input frequency: 50/60Hz

## 3、产品名称：同步模块

Name of product: Synchronization module

型号/Type: HSM300

工作电压/Operating voltage: DC8V~D35V

交流输入电压/AC input voltage: AC50V~ AC620V (ph-ph)

交流输入频率 AC input frequency: 50/60Hz





中国船级社  
CHINA CLASSIFICATION SOCIETY

证书格式号/Form: T01.02-  
HB000067

型式认可证书  
CERTIFICATE OF TYPE APPROVAL

证书编号/Certificate No. WH18T00036\_03

兹证明本证书所述制造厂生产的下列产品能够满足下面列明认可标准的要求。

This is to certify that the following products produced by the manufacturer stated in the certificate can meet the requirements of the approval standards listed below.

认可产品/ Product Approved

功率管理控制器

POWER MANAGEMENT CONTROLLER

电站控制和防护用多功能系统

Multi-Function System for Control and Protection of Generator Plants

制造厂/ Manufacturer

郑州众智科技股份有限公司

Smartgen Technology Co.,Ltd

郑州高新技术开发区金梭路28号

No.28Jinsuo Road, Hi-tech Industries Development Zone, Zhengzhou

附加标志/ Notations

无/Nil.

认可标准/ Approval Standard

1.中国船级社《钢质海船入级规范》(2018)及其修改通报第4篇 第3章  
Chapter 3, Part Four of China Classification Society Rules for the Classification of Sea-going Steel Ships 2018 and its Amendments

证书有效期至/ This Certificate is valid until

2022年7月23日 / Jul. 23, 2022

发证机构  
Issued by

中国船级社武汉分社  
CCS Wuhan Branch

签发日期  
Date

2018年12月21日  
Dec. 21, 2018

本证书根据中国船级社《钢质海船入级规范》及有关程序规定签发。关于证书的有关规定见本证书背面的说明。当本证书包括多页纸张时，则所有证书页为一个整体，必须同时使用。每一页证书均须由本社盖章方为有效。证书复印件无效。任何单位和个人均不应摘录或节选本证书的部分内容。本认可证书不代表本社对个体产品质量的检验。有关各方对所持证书的真实性有疑问时，可以向本社检验机构咨询。  
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CCS

CHINA CLASSIFICATION SOCIETY

中国船级社总部/CCS headquarters: 北京市东直门南大街9号船检大厦 邮编: 100007 电话/Tel: +86(10)58112298 传真/Fax: +86(10)58112811  
CCS Mansion, 9 Dongzhimen Nan Da Jie, Beijing 100007, China 网址/Web Site: http://www.ccs.org.cn  
本地检验机构/CCS Local Office: 中国船级社武汉分社 CCS Wuhan Branch 电话/Tel: +86(27)85862521 传真/Fax: +86(27)8586274



WH47760942

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产品明细/ Product Description

电站控制和防护用多功能系统/Multi-Function System for Control and Protection of Generator Plants  
 产品型号/Type : HMC6  
 额定电压/Rated Voltage : DC24 V  
 监测容量/Capacity of Supervising : AC15~360 V (三相四线)/AC30~620 V (三相三线) | AC15~360 V (ph-N)/AC30~620 V (ph-ph)  
 外壳防护等级/Degree of Protection of Enclosure : IP44

批准的图纸和设计计算书/ Approved Drawings and Design Calculations

图纸批准号/ Drawings Approval No. : WH18A00384

产品认可试验报告/ Approval Test Report

试验报告编号/Test Report No. : 检测2017-286  
 试验报告日期/Test Report Date : 2017-12-15  
 试验单位/ Laboratory : 中国船舶工业武汉机电产品环境与可靠性试验检测中心  
 Wuhan Environment and Reliability Test Center for  
 Mechanical and Electrical Products of China  
 Shipbuilding Industry Corporation  
 试验单位地址/ Test Address : 武汉市江夏区藏龙岛开发区藏龙大道三号  
 NO.3 Canglong street, Jiangxia district, Wuhan, P.R.  
 China  
 试验报告编号/Test Report No. : CHKS2018-0116  
 试验报告日期/Test Report Date : 2018-03-20  
 试验单位/ Laboratory : 中国船舶工业武汉机电产品环境与可靠性试验检测中心  
 Wuhan Environment and Reliability Test Center for  
 Mechanical and Electrical Products of China  
 Shipbuilding Industry Corporation  
 试验单位地址/ Test Address : 武汉市江夏区藏龙岛开发区藏龙大道三号  
 NO.3 Canglong street, Jiangxia district, Wuhan, P.R.  
 China  
 试验报告编号/Test Report No. : ZZ-ZL-003-5  
 试验报告日期/Test Report Date : 2018-11-29  
 试验单位/ Laboratory : 郑州众智科技股份有限公司  
 Smartgen (Zhengzhou) Technology Co., Ltd  
 试验单位地址/ Test Address : 郑州高新区金梭路28号  
 No.28 Jinsuo Road, Zhengzhou, P.R. China

产品适用范围/ Application of the Product

船舶与海上设施/Ships and Offshore Installations

认可保持条件/ Maintenance Requirements of Approval

1. 型式认可后, 如果产品及其重要零部件的设计、所用材料或制造方法有所改变, 且影响到产品的主要特性、特征; 或产品的性能指标有所更改, 且超过认可的范围, 则有关图纸和文件应经检验机构审批。并在检验机构认为必要时, 经本社检验人员见证有关试验和进行检查, 其结果应能证实仍符合认可条件。  
 After type approval, if there are changes to the design, materials used or manufacturing method of the product and important components and such changes affect major characteristics and properties of the product, or property indexes of the product are changed and exceed the scope of approval, related drawings and documents are to be examined and approved by the concerned survey office. Where deemed necessary by the survey office, the surveyor to the Society will go to witness relevant tests and conduct inspection and the results should be able to demonstrate compliance with the approval conditions.
2. 工厂的质量管理体系应保持有效运行, 并且与认可时一致。如果质量管理体系发生改变, 应经原体系认证机构审核并本社批准。  
 The quality management system of the factory shall be ensure effective operation, and shall be the same as the situation of approval. If there are any changes to the quality management system, auditing of the original certification organization for quality management system and the society's approval shall be obtained.
3. 认可证书有效期内, 如果出现可能导致本社取消认可的情况, 工厂应及时采取有效的纠正措施。  
 Within the validity of the approval certificate, if cases occur that may cause the Society to withdraw the approval, the manufacturer should take corrective actions in a prompt and effective manner.
4. 在认可证书有效期内, 本社检验人员可在未经事先通知的情况下对工厂的产品制造过程进行审核, 以验证产品的生产是否符合业经本社批准的图纸和文件。工厂应予以配合。  
 Within the validity of the approval certificate, the surveyor to the Society may pay unannounced audit to the manufacturing process of the product in order to confirm whether it is in compliance with the drawings and documents approved by the Society. The factory should provide an active cooperation and necessary for the surveyor.
5. 如果属于获得型式认可B 模式证书, 且无需颁发船用产品证书/等效证明文件的情况, 证书获得者应接受本社每年一次的定期审核, 定期审核日为认可证书期满之日对应的每一周年日, 检查工作可在周年日的前后三个月内进行。



If belong to the situation of the product has type approval mode B certificate, and marine product certificate/equivalent document is not necessary, those who have obtained the certificate should be subject to periodical audit every year. The periodical audit should be carried out within 3 months before and after the anniversary date which corresponds to the date of expiry of the relevant.

**认可后的产品检验方式/ Method of Product Inspection after Approval**

按照规范只认可不进行产品检验的产品/The product approved only in term of the rules:  
认可后的产品检验由制造厂按本社批准的产品检验计划进行检验, 经检验合格后由制造厂签发合格证明, 并连同该产品的本社认可证书复印件一并交付用户, 制造厂对产品符合公约、法规、本社规范和本社认可的标准规定负责。  
After approval, product inspection should be carried out by the Manufacturer in accordance with the product inspection scheme approved by the Society. Upon satisfactory inspection, and the Quality Certificate issued by the Manufacturer should be provided to the purchaser together with the copy of the approval certificate issued by the Society. The manufacturer should take responsibility for the product being in compliance with the convention, statutory regulation, the Society rules and the standard accepted by the Society.

**对于原材料和零部件的检验要求/ Inspection Requirements for Materials and Components**

产品如下原材料和零部件应由本社认可的制造厂生产/The following materials and components of the product should be manufactured by the factory approved by the Society: 电线/Wires.

产品如下原材料和零部件应经本社检验/The following materials and components of the product should be inspected by the Society: 无/Nil.

产品如下原材料和零部件的制造厂清单, 经本社批准方可变更/The list of manufacturer for the following materials and components of the product should not be changed without the Society's approval: 贴片集成块/Chip integration module; 模块/Module; 液晶屏/LCD screen.

**责任声明/ Statement of Responsibility**

本社的认可不影响、替代与本社授权或检验无关的各方对上述工厂的认可和发证, 并且不对与本社授权或检验无关的各方负责, 不承担其未经应允而承认、接受本社认可所导致的法律和经济责任。  
The approval of the Society does not affect and replace any approval and certification of the manufacturer by any parties that bear no relation with this Society's authorization or survey and therefore takes no responsibility for these parties. The Society does not undertake any legal and economic liabilities arising from accepting this Society's certificate without prior permission from this Society.



**其他/Others**

本证书由原型式认可证书(No. WH14T00063\_03)换新并替代原证书。  
This certificate is renewed from and supersedes the previous Type Approval Certificate No. No. WH14T00063\_03.

本社已审核了产品厂无石棉声明, 但本社的审核不免除产品厂按照合同关系向订货方保证产品无石棉的责任。  
The declaration of asbestos-free submitted by manufacturer has been reviewed by the Society. However, liability of the manufacturer to guarantee the products are asbestos-free to purchaser under contract will not be exempted.



\*\*\*\*\*本证书正文完/ End of Text\*\*\*\*\*





中国船级社  
CHINA CLASSIFICATION SOCIETY

证书格式号/Form: T01.02-SH000004

型式认可证书  
CERTIFICATE OF TYPE APPROVAL

证书编号/Certificate No. WH18T00036\_04

兹证明本证书所述制造厂生产的下列产品能够满足下面列明认可标准的要求。

This is to certify that the following products produced by the manufacturer stated in the certificate can meet the requirements of the approval standards listed below.

认可产品/ Product Approved

多功能保护装置

MULTI-FUNCTION PROTECTION DEVICE

制造厂/ Manufacturer

郑州众智科技股份有限公司

Smartgen Technology Co.,Ltd

郑州高新技术开发区金梭路28号

No.28Jinsuo Road, Hi-tech Industries Development Zone, Zhengzhou



附加标志/ Notations

无/Nil.

认可标准/ Approval Standard

1. 中国船级社《钢质海船入级规范》(2018)及其修改通报第7篇 第2章  
Chapter 2, Part 7 of China Classification Society Rules for Classification of Sea-going Steel Ships 2018 and its Amendments

证书有效期至/ This Certificate is valid until

2022年7月23日 / Jul. 23, 2022

发证机构  
Issued by

中国船级社武汉分社  
CCS Wuhan Branch

签发日期  
Date

2018年12月21日  
Dec. 21, 2018

本证书根据中国船级社《钢质海船入级规范》及有关程序规定签发。关于证书的有关规定见本证书背面的说明。当本证书包括多页纸张时，则所有证书页为一个整体，必须同时使用。每一页证书均须由本社盖章方为有效。证书复印件无效。任何单位和个人不应摘录或节选本证书的部分内容。本认可证书不代表本社对个体产品质量的检验。有关各方对所持证书的真实性有疑问时，可以向我社检验机构咨询。  
This Certificate is issued pursuant to the Rules for Classification of Sea-going Steel Ships and related procedures of the Society. Refer to the back of the certificate for detailed requirements of the certificate. When the certificate consists of more than one page, all pages of the certificate are taken as a whole and are used simultaneously. No certificate page is valid without bearing the stamp of the Society and no copied form of the certificate is regarded as valid. Any part of the certificate is not to be extracted or abridged by any unit or individual in any form. This approval certificate does not constitute the inspection of the Society about the quality of the unit/batch product. Related parties who are doubted about the authenticity of the certificate may inquire of the Society or its offices.



中国船级社总部/CCS headquarters: 北京市东直门南大街9号船检大厦 邮编: 100007 电话/Tel: +86(10)58112288 传真/Fax: +86(10)58112811  
CCS Mansion, 9 Dongzhimen Nan Da Jie, Beijing 100007, China 网址/Web Site: http://www.ccs.org.cn  
本地检验机构/CCS Local Office: 中国船级社武汉分社 CCS Wuhan Branch 电话/Tel: +86(27)85862521 传真/Fax: +86(27)8586274

WH52744300  
No. 18222776



**产品明细/ Product Description**

多功能保护装置/MULTI-FUNCTION PROTECTION DEVICE  
产品型号/Type

: 详见附页 | See additional page

**批准的图纸和设计计算书/ Approved Drawings and Design Calculations**

图纸批准号/ Drawings Approval No. : WH18A00384

**产品认可试验报告/ Approval Test Report**

试验报告编号/Test Report No. : 检测2017-286  
 试验报告日期/Test Report Date : 2017-12-15  
 试验单位/ Laboratory : 中国船舶工业武汉机电产品环境与可靠性试验检测中心  
 Wuhan Environment and Reliability Test Center for  
 Mechanical and Electrical Products of China  
 Shipbuilding Industry Corporation  
 试验单位地址/ Test Address : 武汉市江夏区藏龙岛开发区藏龙大道三号  
 NO.3 Canglong street, Jiangxia district, Wuhan, P. R.  
 China  
 试验报告编号/Test Report No. : CHKS2018-0116  
 试验报告日期/Test Report Date : 2018-03-20  
 试验单位/ Laboratory : 中国船舶工业武汉机电产品环境与可靠性试验检测中心  
 Wuhan Environment and Reliability Test Center for  
 Mechanical and Electrical Products of China  
 Shipbuilding Industry Corporation  
 试验单位地址/ Test Address : 武汉市江夏区藏龙岛开发区藏龙大道三号  
 NO.3 Canglong street, Jiangxia district, Wuhan, P. R.  
 China  
 试验报告编号/Test Report No. : ZZ-ZL-003-8  
 试验报告日期/Test Report Date : 2018-11-29  
 试验单位/ Laboratory : 郑州众智科技股份有限公司  
 Smartgen (Zhengzhou) Technology Co.,Ltd  
 试验单位地址/ Test Address : 郑州高新区金梭路28号  
 No. 28 Jinsuo Road, Zhengzhou, P. R. China  
 试验报告编号/Test Report No. : ZZ-ZL-003-9  
 试验报告日期/Test Report Date : 2018-11-29  
 试验单位/ Laboratory : 郑州众智科技股份有限公司  
 Smartgen (Zhengzhou) Technology Co.,Ltd  
 试验单位地址/ Test Address : 郑州高新区金梭路28号  
 No. 28 Jinsuo Road, Zhengzhou, P. R. China

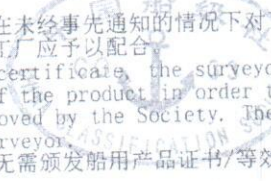


**产品适用范围/ Application of the Product**

船舶与海上设施/Ships and Offshore Installations

**认可保持条件/ Maintenance Requirements of Approval**

1. 型式认可后, 如果产品及其重要零部件的设计、所用材料或制造方法有所改变, 且影响到产品的主要特性、特征; 或产品的性能指标有所更改, 且超过认可的范围, 则有关图纸和文件应经检验机构审批。并在检验机构认为必要时, 经本社检验人员见证有关试验和进行检查, 其结果应能证实仍符合认可条件。  
 After type approval, if there are changes to the design, materials used or manufacturing method of the product and important components and such changes affect major characteristics and properties of the product, or property indexes of the product are changed and exceed the scope of approval, related drawings and documents are to be examined and approved by the concerned survey office. Where deemed necessary by the survey office, the surveyor to the Society will go to witness relevant tests and conduct inspection and the results should be able to demonstrate compliance with the approval conditions.
2. 工厂的质量管理体系应保持有效运行, 并且与认可时一致。如果质量管理体系发生改变, 应经原体系认证机构审核并报本社批准。  
 The quality management system of the factory shall be ensure effective operation, and shall be the same as the situation of approval. If there are any changes to the quality management system, auditing of the original certification organization for quality management system and the society's approval shall be obtained.
3. 认可证书有效期内, 如果出现可能导致本社取消认可的情况, 工厂应及时采取有效的纠正措施。  
 Within the validity of the approval certificate, if cases occur that may cause the Society to withdraw the approval, the manufacturer should take corrective actions in a prompt and effective manner.
4. 在认可证书有效期内, 本社检验人员可在未经事先通知的情况下对工厂的产品制造过程进行审核, 以验证产品的生产是否符合业经本社批准的图纸和文件。工厂应予以配合。  
 Within the validity of the approval certificate, the surveyor to the Society may pay unannounced audit to the manufacturing process of the product in order to confirm whether it is in compliance with the drawings and documents approved by the Society. The factory should provide an active cooperation and necessary for the surveyor.
5. 如果属于获得型式认可B 模式证书, 且无需颁发船用产品证书/等效证明文件的情况, 证书获得者应接受本社每年



一次的定期审核，定期审核日为认可证书期满之日对应的每一周年日，检查工作可在周年日的前后三个月内进行。  
If belong to the situation of the product has type approval mode B certificate, and marine product certificate/equivalent document is not necessary, those who have obtained the certificate should be subject to periodical audit every year. The periodical audit should be carried out within 3 months before and after the anniversary date which corresponds to the date of expiry of the relevant.

**认可后的产品检验方式/ Method of Product Inspection after Approval**

按照规范只认可不进行产品检验的产品/The product approved only in term of the rules:  
认可后的产品检验由制造厂按本社批准的产品检验计划进行检验，经检验合格后由制造厂签发合格证明，并连同该产品的本社认可证书复印件一并交付用户，制造厂对产品符合公约、法规、本社规范和本社认可的标准规定负责。  
After approval, product inspection should be carried out by the Manufacturer in accordance with the product inspection scheme approved by the Society. Upon satisfactory inspection, and the Quality Certificate issued by the Manufacturer should be provided to the purchaser together with the copy of the approval certificate issued by the Society. The manufacturer should take responsibility for the product being in compliance with the convention, statutory regulation, the Society rules and the standard accepted by the Society.

**对于原材料和零部件的检验要求/ Inspection Requirements for Materials and Components**

产品如下原材料和零部件应由本社认可的制造厂生产/The following materials and components of the product should be manufactured by the factory approved by the Society: 电线/Wires.

产品如下原材料和零部件应经本社检验/The following materials and components of the product should be inspected by the Society: 无/Nil.

产品如下原材料和零部件的制造厂清单，经本社批准方可变更/The list of manufacturer for the following materials and components of the product should not be changed without the Society's approval: 贴片集成模块/Chip integration module, 单片机/Singlechip, 液晶屏/LCD screen..

**责任声明/ Statement of Responsibility**

本社的认可不影响、替代与本社授权或检验无关的各方对上述工厂的认可和发证，并且不对与本社授权或检验无关的各方负责，不承担其未经应允而承认、接受本社认可所导致的法律和经济责任。  
The approval of the Society does not affect and replace any approval and certification of the manufacturer by any parties that bear no relation with this Society's authorization or survey and therefore takes no responsibility for these parties. The Society does not undertake any legal and economic liabilities arising from accepting this Society's certificate without prior permission from this Society.

**其他/Others**

本证书由原型式认可证书 (No. WH14T00063\_01) 变更并换新。  
This certificate is modified and renewed from the previous Type Approval Certificate No. WH14T00063\_01.

本社已审核了产品厂无石棉声明，但本社的审核不免除产品厂按照合同关系向订货方保证产品无石棉的责任。  
The declaration of asbestos-free submitted by manufacturer has been reviewed by the Society. However, liability of the manufacturer to guarantee the products are asbestos-free to purchaser under contract will not be exempted.

中国船级社武汉分社

CCS Wuhan Branch

\*\*\*\*\*本证书正文完/ End of Text\*\*\*\*\*

注：本证书含有附页，共1页

Note: The certificate is attached with 1 additional page(s)



认可证书包含范围/ Certificate contains Range :

产品名称: 电量综合保护模块

Name of product: Power integrated protection module

型号、规格/Type: HMP300

工作电压/ Operating Voltage: DC8V~DC35V

交流输入电压/ AC input voltage: AC30V~AC620V(ph-ph)

交流输入频率/ AC input frequency: 50/60Hz

产品名称: 逆功率保护继电器

Name of product: Reverse power protection relay

型号、规格/Type: HPD300

工作电压/ Operating Voltage: DC8V~DC35V

交流输入电压/ AC input voltage: AC30V~AC620V(ph-ph)

交流输入频率/ AC input frequency: 50/60/400Hz





Marine &amp; Offshore

Certificate number: 58530/A0 BV

File number: AP 4932

Product code: 2650H

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

www.veristar.com

## TYPE APPROVAL CERTIFICATE

This certificate is issued to

**SMARTGEN (Zhengzhou) Technology Co., Ltd.**

Zhengzhou - CHINA

for the type of product

**MULTIFUNCTION PROTECTION RELAYS**

Low Voltage Switchboard Relay Modules:

HLS300, HSM300, HEP300, HPD300, HVD300, HFT300, HOC300, HMP300

**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: 09 Dec 2025**

**For Bureau Veritas Marine & Offshore,**

At BV SHANGHAI, on 09 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.

The electronic version is available at: <http://www.veristarp.com/veristarb/jsp/viewPublicPdfTypepec.jsp?id=7hqirys7jz>  
BV Mod. Ad.E 530 June 2017

This certificate consists of 4 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION :

#### **1.1 - Power Share Module - HLS300:**

Design for genset power share, sharing active load to each operating genset according to genset capacitance. It is suit for 50Hz/60Hz 3P3W, 1P2W power system.

Operation voltage	8 to 35 VDC
AC Input	AC50V - AC620V (ph-ph)
AC Frequency	50Hz/60Hz
Output	Contact capacity 7A AC250V volts free output
Operation Temperature	-25 to 70°C

#### **1.2 - Synchronous Module - HSM300:**

Design for genset automatic parallel. HSM300 Synchronous Module is to synchronize generator to bus. When pressure difference, frequency difference and phase difference are within pre-set value, it will send synchronize signal to close gens switch.

Operation voltage	8 to 35 VDC
AC Input	AC50V - AC620V (ph-ph)
AC Frequency	50Hz/60Hz
Output	Contact capacity 7A/5A/AC 250V, DC 30V volts free output
Operation Temperature	-25 to 70°C

#### **1.3 - Electronic Potentiometer - HEP300:**

HEP300 Electronic Potentiometer module integrates digitization, intelligentization and network technology to achieve converting the digital signal or analog signal to target voltage, current or PWM signal.

Operation voltage	8 to 35 VDC
Integral time	2.5s - 125s
Input Voltage	DC ±10V
Output Voltage	DC ±10V
Output Current	DC ±20mA
PWM Output	6V 500Hz(0-100)% Pulse Width PWM
Operation Temperature	-25 to 70°C

#### **1.4 - Reverse Power Protection Relay - HPD300:**

Design to avoid the above situation and provide protection when over power situation occurs and initiate fault alarms with indicator lights on

Operation voltage	8 to 35 VDC
AC Input	AC30V - AC620V (ph-ph)
AC Frequency	50Hz/60Hz/400HZ
Output	5A/AC 250V volts free output
Operation Temperature	-25 to 70°C

#### **1.5 - Voltage Detection Relay - HVD300:**

Design for detecting over voltage, under voltage, loss of phase, phase sequence wrong and other abnormal condition accurately and the corresponding relay.

Operation voltage	8 to 35 VDC
AC Input	AC30V - AC620V (ph-ph)
AC Frequency	50Hz/60Hz/400HZ
Output	5A/AC 250V volts free output
Operation Temperature	-25 to 70°C

**1.6 - Frequency Detection Relay - HFT300:**

Close and initiate sound-light alarm signals when the frequency has exceeded/fallen below the set value

Operation voltage	8 to 35 VDC
AC Input	AC30V - AC620V (ph-ph)
AC Frequency	50Hz/60Hz/400HZ
Output	5A/AC 250V volts free output
Operation Temperature	-25 to 70°C

**1.7 - Over Current Protection Relay - HOC300:**

Alarm protection activates when the load current has exceeded the set value.

Operation voltage	8 to 35 VDC
AC Input	AC30V - AC620V (ph-ph)
AC Frequency	50Hz/60Hz/400HZ
Output	5A/AC 250V volts free output
Operation Temperature	-25 to 70°C

**1.8 - Power Integrated Protection Module - HMP300:**

Suits for 3P4W, 3P3W, 1P2W, 2P3W power system with 5Hz/60Hz, is used to apply alarm protection for load current, voltage, frequency, and reverse power. LCD can display electric parameters in operational Chinese and English language.

Operation voltage	8 to 35 VDC
AC Input	AC30V - AC620V (ph-ph)
AC Frequency	50Hz/60Hz
Output	DC28V 5A/AC 250V 10A volts free output
Operation Temperature	-25 to 70°C

**2. DOCUMENTS AND DRAWINGS :****SmartGen:**

- HLS300 Power Share Module Technical Specification, No. ZZ-SJ-SS023, dated 06-08-2015.
- HLS300 Power Share Module User Manual, Version 1.1, dated 07-09-2015.
- HLS300/HSM300/HEP300 Electrical Principle & External Wiring Diagram, No. ZZ-TY-GYL522, dated 10-03-2017.
- HSM300 Synchronous Module Technical Specification, No. ZZ-SJ-SS022, dated 09-06-2015.
- HSM300 Synchronous Module User Manual, Version 1.0, dated 21-05-2015.
- HEP300 Electronic Potentiometer Module Technical Specification, No. ZZ-SJ-SS024, dated 09-11-2016.
- HEP300 Electronic Potentiometer Module User Manual, Version 1.2, dated 01-11-2016.
- HPD300 Reverse Power Protection Relay Technical Specification, No. ZZ-SJ-SS006, dated 10-09-2014.
- HPD300 Reverse Power Protection Relay User Manual, Version 1.2, dated 24-03-2015.
- HPD300 Electrical Principle & External Wiring Diagram, No. ZZ-TY-GYL205, dated 08-08-2014.
- HVD300 Voltage Detection Relay Technical Specification, No. ZZ-SJ-SS009, dated 10-09-2014.
- HVD300 Voltage Detection Relay User Manual, Version 1.2, dated 24-03-2015.
- HVD300 Electrical Principle & External Wiring Diagram, No. ZZ-TY-GYL202, dated 08-08-2014.
- HFT300 Frequency Detection Relay Technical Specification, No. ZZ-SJ-SS008, dated 10-09-2014.
- HFT300 Frequency Detection Relay User Manual, Version 1.2, dated 24-03-2015.
- HFT300 Electrical Principle & External Wiring Diagram, No. ZZ-TY-GYL203, dated 08-08-2014.
- HOC300 Over Current Protection Relay Technical Specification, No. ZZ-SJ-SS007, dated 12-09-2014.
- HOC300 Over Current Protection Relay User Manual, Version 1.2, dated 24-03-2015.
- HOC300 Electrical Principle & External Wiring Diagram, No. ZZ-TY-GYL203, dated 08-08-2014.
- HMP300 Power Integrated Protection Module Technical Specification, No. ZZ-SJ-SS025, dated 16-03-2017.
- HMP300 Power Integrated Protection Module User Manual, Version 1.0, dated 10-07-2017.
- HMP300 Electrical Principle & External Wiring Diagram, No. ZZ-TY-GYL203, dated 08-08-2014.

**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.

**SmartGen:**

- Environmental Test Report , witnessed on 15-06-2020.
- Electronic potentiometer HEP300 Performance Test Report, No. ZZ-ZL-003-8, witnessed on 26-10-2020.
- Power share module HLS300 Performance Test Report, No. ZZ-ZL-003-9, witnessed on 26-10-2020.
- Synchronous Module HSM300 Performance Test Report, No. ZZ-ZL-003-10, witnessed on 26-10-2020.
- Voltage Detection Relay HVD300 Performance Test Report, No. ZZ-ZL-003-11, witnessed on 26-10-2020.
- Over Current Protection Relay HOC300 Performance Test Report, No. ZZ-ZL-003-12, witnessed on 26-10-2020.
- Frequency Detection Relay HFT300 Performance Test Report, No. ZZ-ZL-003-13, witnessed on 26-10-2020.
- Reverse Power Protection Relay HPD300 Performance Test Report, No. ZZ-ZL-003-14, witnessed on 26-10-2020.
- Power integrated protection module HMP300 Performance Test Report, No. ZZ-ZL-003-15, witnessed on 26-10-2020.

**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.

**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 installation shall comply with the Manufacturer's recommendation described in the above-referenced documentation.
- 4.6 - The above products comply with the test requirements of IACS E10 Rev7.

**5. PRODUCTION SURVEY REQUIREMENTS :**

- 5.1 - The above products are to be supplied by **SMARTGEN (Zhengzhou) Technology Co., Ltd.** in compliance with the type described in this certificate.
- 5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.
- 5.3 - **SMARTGEN (Zhengzhou) Technology Co., Ltd.** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.
- 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

**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 \*\*\*



Marine &amp; Offshore

Certificate number: 58531/A0 BV

File number: AP 4934

Product code: 26581

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

www.veristar.com

## 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.

The electronic version is available at: <http://www.veristarpm.com/veristamb/jsp/viewPublicPdfTypepec.jsp?id=cr9avwerzu>

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.

<b>Operation Voltage</b>	8 to 35 Vdc
<b>Display</b>	480 x 272 LCD backlit display
<b>Operation Temperature</b>	-25 to 70°C
<b>IP Level</b>	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.

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

#### **1.3 - Marine Genset Controller - HMC6110NC**

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

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

<b>Operation Voltage</b>	8 to 35 Vdc
<b>Display</b>	132 x 64 LCD backlit display
<b>Operation Temperature</b>	-25 to 70°C
<b>IP Level</b>	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 \*\*\*