SmartGen 众智

MAKING CONTROL SMARTER

股票代码 Stock Code 301361
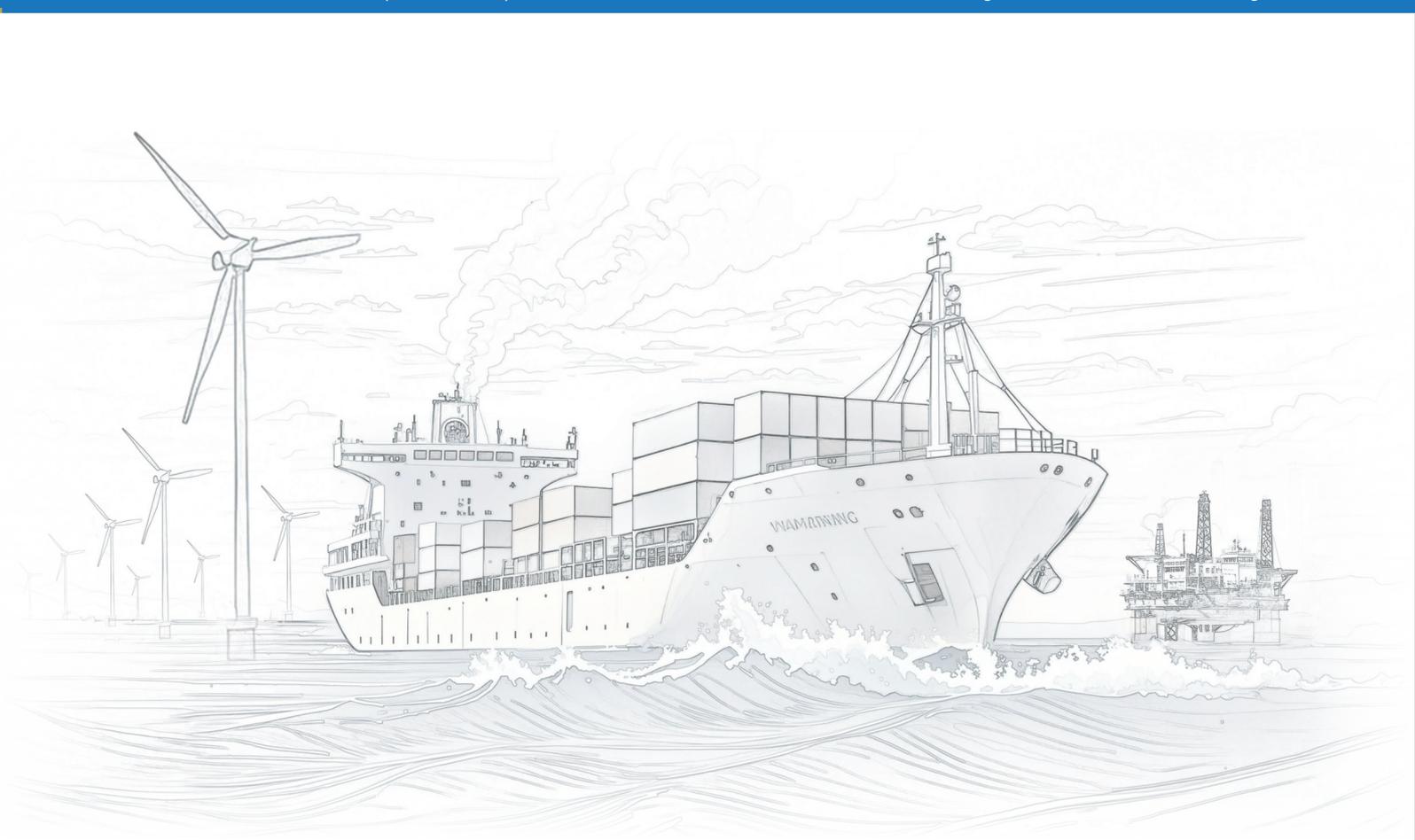
MARINE PRODUCT CATALOGUE
船舶产品选型样册

MAKING CONTROL SMARTER | 2026

SMARTGEN(ZHENGZHOU) TECHNOLOGY CO., LTD.

SmartGen
EST.1998

ABOUT US　关于我们

始建于	公司总部	产品类别	客 户
ESTABLISHED IN 1998	HEADQUARTERS: ZHENGZHOU, CHINA	PRODUCT CATEGORIES	CUSTOMERS
1998	**中国·郑州**	**1000+**	**3000+**

众智科技始建于1998年，创业板（股票代码301361）上市企业。

主要从事发动机、发电机和发电机组控制系统、新能源微网控制系统、智能电网控制系统等相关产品的研发、生产、销售和服务。产品广泛应用于矿山石油开采、智算中心、船舶、海岛、智能大厦、零碳园区、电信、基建、工商储等领域，业务范围遍布全球，在50多个国家和地区设有办事机构。

拥有数百项专利，有超过30%的员工致力于研发工作，坚持"让控制更智能"的核心理念，以推动行业技术进步为使命，不断创新与自我超越，为打造优质、安全、绿色、低碳可持续发展的产业生态链而不懈努力！

Established in 1998, SmartGen is a listed public company (stock code: 301361). The company specializes in the research and development, manufacturing, sales, and service of control systems for engines, generators and generator sets, new energy microgrid and smart grid. SmartGen's products are widely used across a broad range of industries including mining and oil extraction, AI data centers, ships, offshore islands, smart buildings, zero-carbon industrial parks, telecommunications, infrastructure, and commercial & industrial energy storage. With a global presence, we have set offices in more than 50 countries and regions. Holding hundreds of patents and with over 30% of its workforce engaged in R&D, SmartGen remains committed to its core philosophy of "Making Control Smarter". Driven by a mission to lead technological progress in the industry, SmartGen continually innovates and evolves, striving to build a high-quality, safe, green, low-carbon, and sustainable industrial ecosystem.

郑州雪梅街工厂　Zhengzhou Xuemei Street Factory

郑州金梭路工厂

QUALIFICATIONS 资质

产品认证 Product Certification

CCC认证、CE认证、UL认证；CCS（中国船级社）认证、BV（法国船级社）认证、ABS(美国船级社)认证、NK(日本船级社)认证等

CCC certification, CE certification, UL certification; CCS certification, BV certification, ABS certification, NK certification, etc.

管理体系 Management System

质量管理体系ISO9001、CCSR9001,环境管理体系ISO14001,职业健康管理体系ISO45001,知识产权管理体系GB/T29490,两化融合管理体系GB/T23001,双重预防管理体系等

The company has successively passed ISO9001 Quality Management System, CCSR9001 Professional Quality Management System Requirements for Marine Product Manufacturer, ISO14001 Environmental Management System, ISO45001 Occupational Health and Safety Management System, GB/T 29490 Intellectual Property Compliance Management System, GB/T23001 Integration of Informatization and Industrialization Management System, Dual Prevention Management System, etc.

Zhengzhou Jinsuo Road Factory
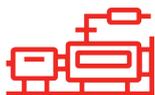
土耳其伊斯坦布尔工厂 Türkiye Istanbul Factory

BUSINESS SECTORS
业务板块

SmartGen
EST.1998

新能源 New Energy
BMS、EMS、PCS、储能柜，AC/DC，DC/DC，保护板
BMS, EMS, PCS, Energy Storage Cabinets, AC/DC, DC/DC, Protection Boards

发电机组控制 Genset Control
单机自起动，AMF，多机并联，并网，灯塔控制，燃油/电加热器，充电器
Standalone Self-starting, AMF, Multi-unit Parallel, Grid connection, Lighting Tower Control, Fuel/Electric Heater, Chargers

交流发电机控制 Alternator Control
数字电压调节,模拟电压调节
DVR, AVR

工程机械控制 Engineering Machinery Control
消防泵控制，空压机控制，发动机控制，CAN监控仪，手油门，遥控器
Fire Pump Control, Air Compressor Control, Engine Control, CAN Monitor, Manual Throttle Control, Remote Controller

智能电网控制 Smart Grid Control

双/多路电源切换、旁路切换，两进线一母联，三进线两母联，ATS

Dual/Multi-power Supply Switching, Bypass Switching, Two-income One Bus, Three-income Two Bus, ATS

船舶控制 Marine Control

EMS，PMS，机旁，电子电位器，传感器

EMS, PMS, Local Control, Electronic Potentiometer, Sensors

云监控 Cloud Monitoring

公有云，私有云，云猫，SCADA，HMI

Public Cloud, Private Cloud, Cloud Monitoring Modem, SCADA, HMI

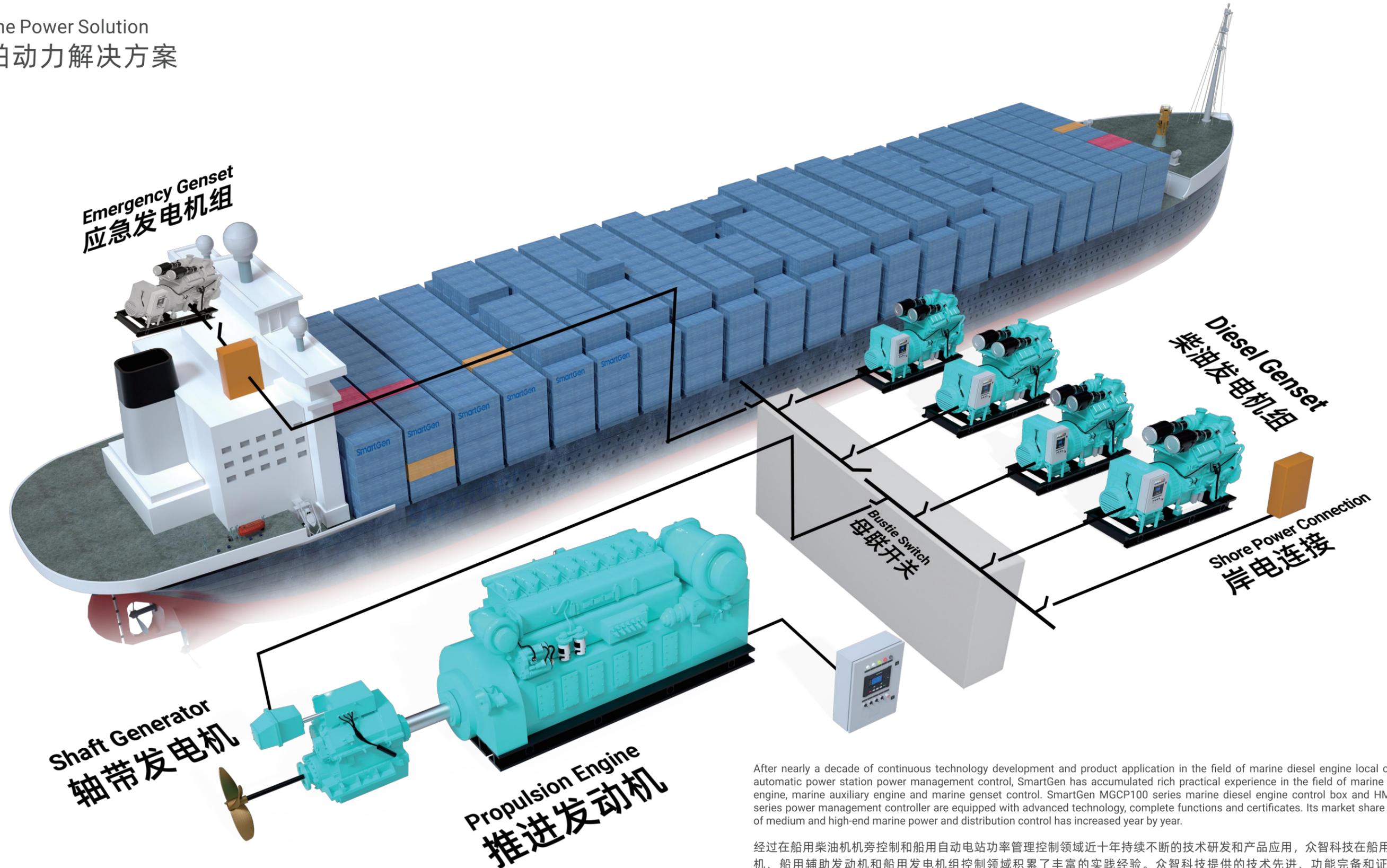### 模块 Modules

继保，安保，同步，负载均分，USB，CANBUS，RS485，Ethernet，DI/DO/AI/AO，光纤，蓝牙，Wifi

Protection Relay, Redundant Protection, Synchronization, Load Sharing, USB, CANBUS, RS485, Ethernet, DI/DO/AI/AO, Fiber Optic, Bluetooth, Wi-Fi

Marine Power Solution
船舶动力解决方案

Emergency Genset
应急发电机组

Diesel Genset
柴油发电机组

Bustle Switch
母联开关

Shore Power Connection
岸电连接

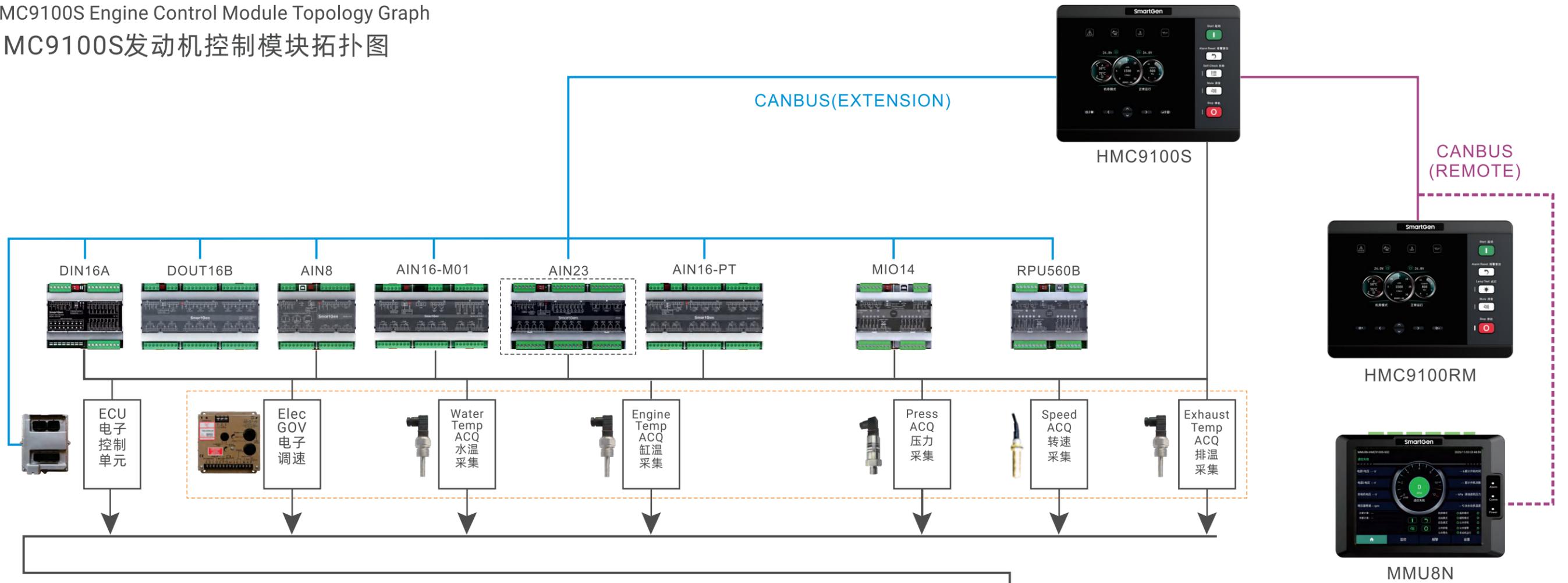**Shaft Generator**
轴带发电机

Propulsion Engine
推进发动机

After nearly a decade of continuous technology development and product application in the field of marine diesel engine local control and automatic power station power management control, SmartGen has accumulated rich practical experience in the field of marine propulsion engine, marine auxiliary engine and marine genset control. SmartGen MGCP100 series marine diesel engine control box and HMC6/HPM6 series power management controller are equipped with advanced technology, complete functions and certificates. Its market share in the field of medium and high-end marine power and distribution control has increased year by year.

经过在船用柴油机机旁控制和船用自动电站功率管理控制领域近十年持续不断的技术研发和产品应用，众智科技在船用推进发动机、船用辅助发动机和船用发电机组控制领域积累了丰富的实践经验。众智科技提供的技术先进、功能完备和证书齐全的MGCP100系列船用柴油机控制箱和HMC6/HPM6系列功率管理控制器在中高端船用动力及配电控制领域的市场占有率逐年提升。
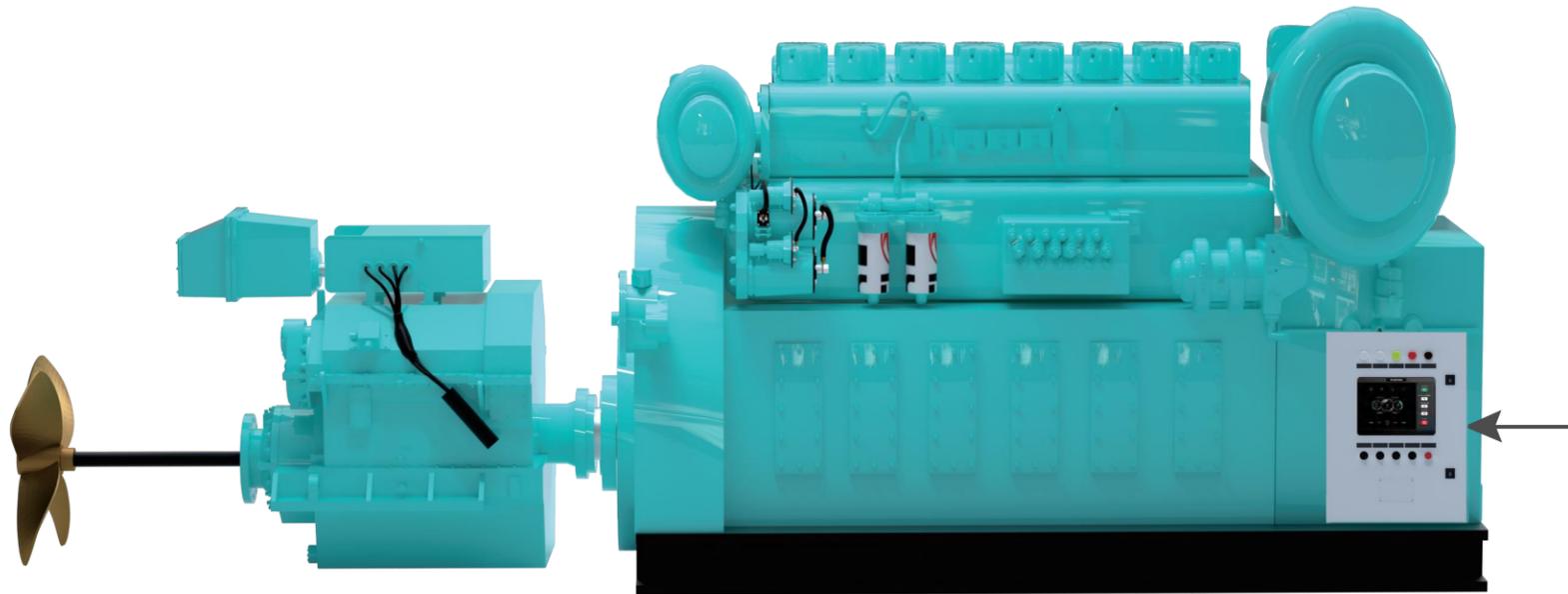
HMC9100S Engine Control Module Topology Graph
HMC9100S发动机控制模块拓扑图

CANBUS(EXTENSION)

HMC9100S

CANBUS
(REMOTE)

DIN16A	DOUT16B	AIN8	AIN16-M01	AIN23	AIN16-PT	MIO14	RPU560B

HMC9100RM

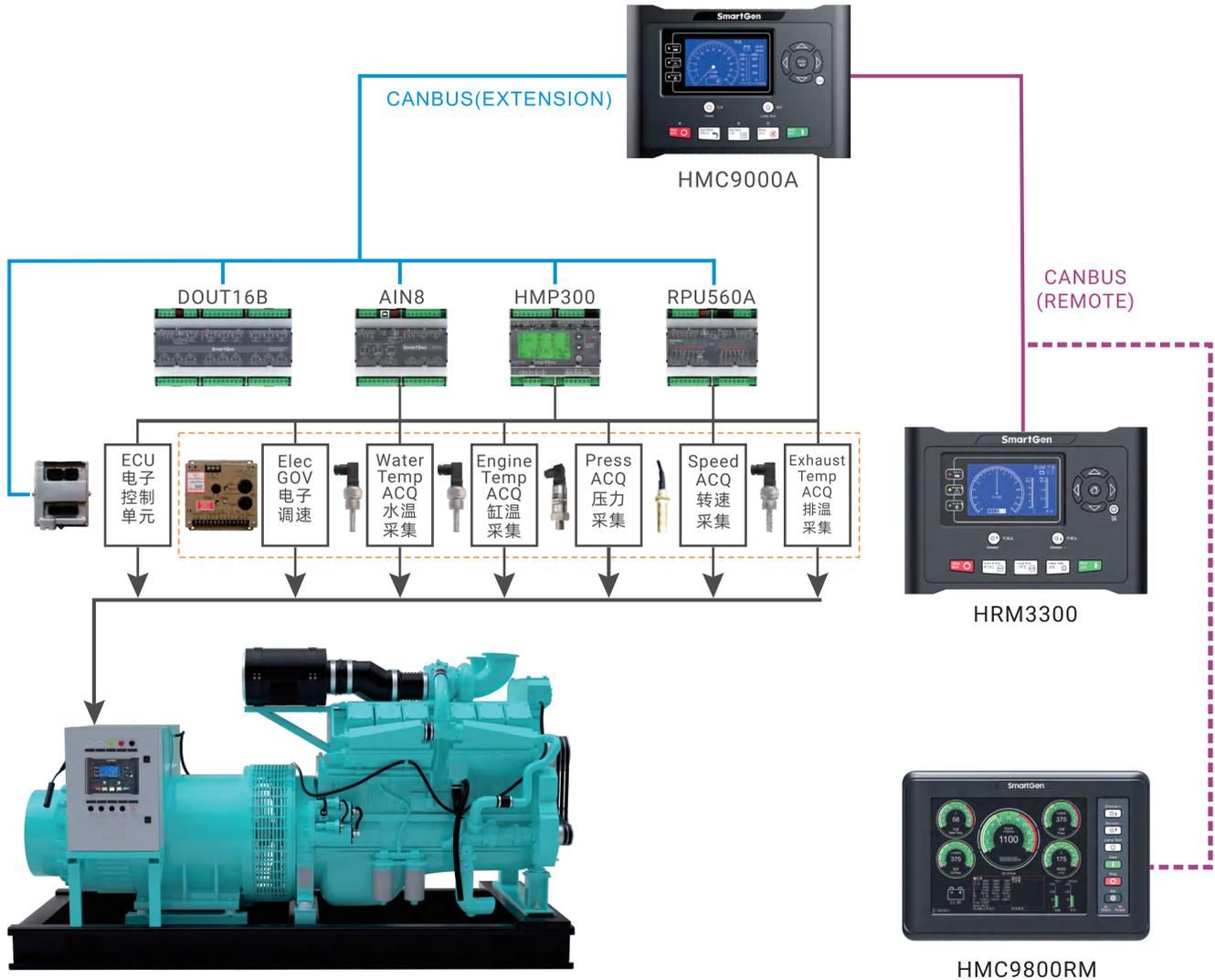| ECU 电子 控制 单元	Elec GOV 电子 调速	Water Temp ACQ 水温 采集	Engine Temp ACQ 缸温 采集	Press ACQ 压力 采集	Speed ACQ 转速 采集	Exhaust Temp ACQ 排温 采集

MMU8N

MGCP100L and MGCP100B series control boxes are designed based on master controller + expansion modules and they are connected via standard CANBUS port and apply unified network topology structure. Meanwhile, master controller pre-sets a set of programmable configuration parameters, thus users can change the working mechanism of control system without changing wire, especially suit for control and protection requirement of high and medium ship for diesel engine.
The control box topology takes HMC9100S as the master controller, and expands DIN16A/DOUT16B/AIN8/AIN16-M01/AIN23/AIN16-PT/MIO14/RPU560B modules to control and protect different engines. The core functions of local control box are inside the master controller, and this control box can be used for marine diesel engines with different speed control types (mechanical/electronic/ECM speed control) by changing parameters. It is suitable for medium and low speed engine control.

MGCP100L和MGCP100B系列控制箱基于主控制器+扩展模块的设计理念，主控制器和扩展模块通过标准CANBUS接口连接，遵循统一的网络拓扑结构。同时主控制器预先内置了一套可编程的配置参数，用户不需要进行线路变更即可改变控制系统的工作机制，特别适用于中高端船舶对柴油机的控制和保护要求。
该控制箱拓扑图以HMC9100S为主控制器，可根据需要外扩DIN16A / DOUT16B / AIN8 / AIN16-M01 / AIN23 / AIN16-PT / MIO14 / RPU560B等模块实现对不同种类发动机的控制与保护。机旁控制箱的核心功能均内置在主控制器中，改变主控制器参数即可将该控制箱用于不同调速类型（机械调速、电子调速和ECM控制）的船用柴油机。特别适用于中速机和低速机控制。

HMC9000A Engine Control Module Topology Graph
HMC9000A发动机控制模块拓扑图

HMC9000A

CANBUS(EXTENSION)

CANBUS
(REMOTE)

DOUT16B	AIN8	HMP300	RPU560A

ECU
电子
控制
单元

Elec
GOV
电子
调速

Water
Temp
ACQ
水温
采集

Engine
Temp
ACQ
缸温
采集

Press
ACQ
压力
采集

Speed
ACQ
转速
采集

Exhaust
Temp
ACQ
排温
采集

HRM3300

HMC9800RM

The control box topology takes HMC9000A as the master controller, and expands DOUT16B/AIN8/HMP300/RPU560A modules to control and protect different engines. The core functions of local control box are inside the master controller, and this control box can be used for marine diesel engines with different speed control types (mechanical/electronic/ECM speed control) by changing parameters. It is suitable for high and medium speed engine control.It is widely used for large and medium diesel engine.

该控制箱拓扑图以HMC9000A为主控制器，可根据需要外扩DOUT16B/AIN8/HMP300/RPU560A等模块实现对不同种类发动机的控制与保护。机旁控制箱的核心功能均内置在主控制器中，改变主控制器参数即可将该控制箱用于不同调速类型（机械调速、电子调速 和ECM控制）的船用柴油机。特别适用于高速机和中速机控制。广泛应用于中大型柴油机。
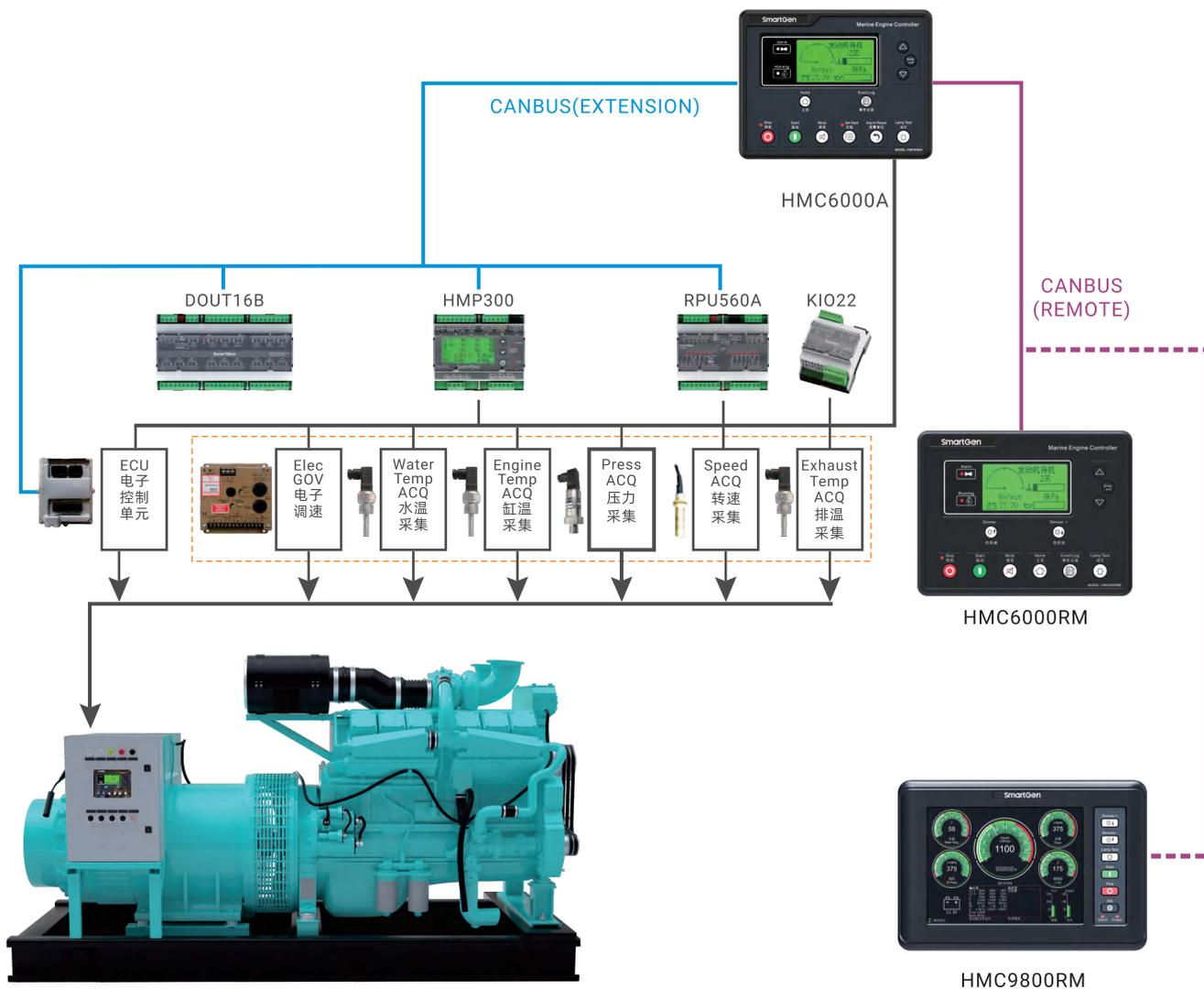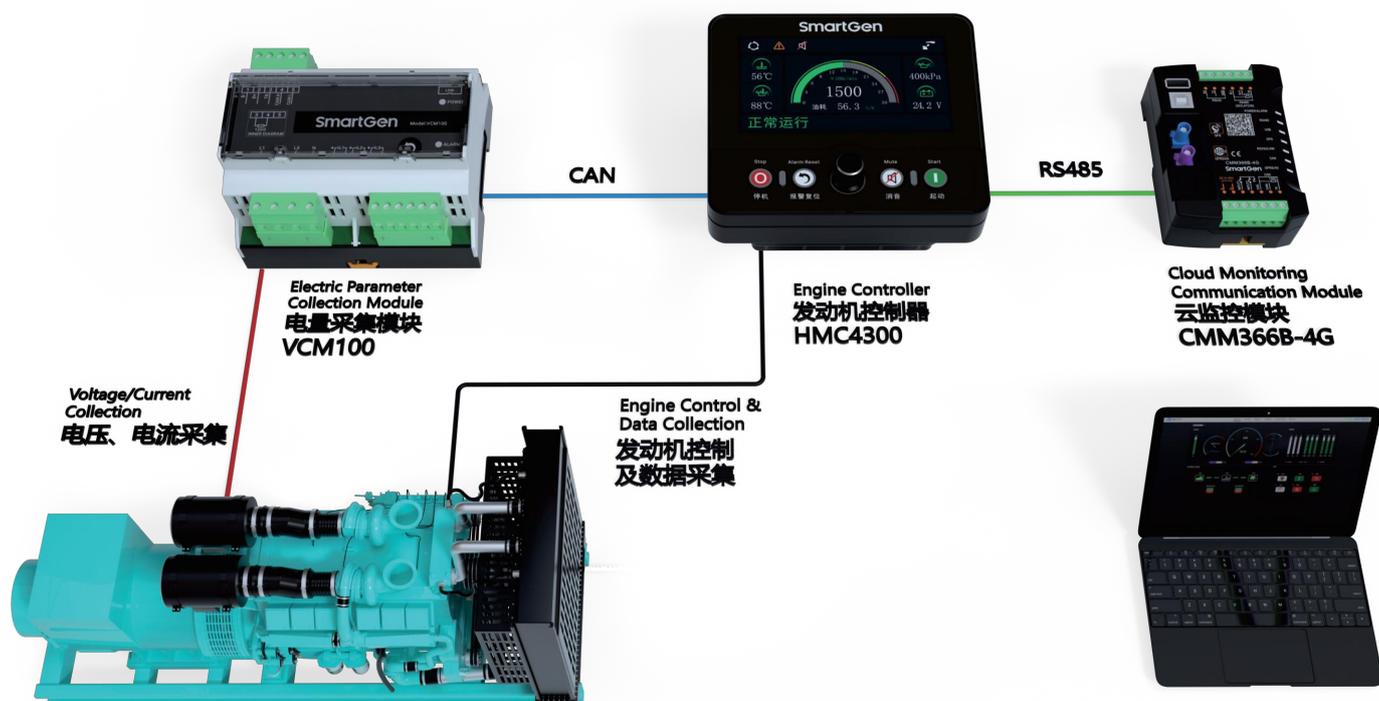
HMC6000A Engine Control Module Topology Graph
HMC6000A发动机控制模块拓扑图

The control box topology takes HMC6000A as the master controller, and expands DOUT16B/HMP300/RPU560A modules to control and protect different engines. The core functions of local control box are inside the master controller, and this control box can be used for marine diesel engines with different speed control types (mechanical/electronic/ECM speed control) by changing parameters. It is suitable for medium and small engines with high speed. It is widely used for large and medium diesel engine.

该控制箱拓扑图以HMC6000A为主控制器，可根据需要外扩DOUT16B/HMP300/RPU560A等模块实现对不同种类发动机的控制与保护。机旁控制箱的核心功能均内置在主控制器中，改变主控制器参数即可将该控制箱用于不同调速类型（机械调速、电子调速 和ECM控制）的船用柴油机。特别适用于中小型高速机控制。广泛应用于中大型柴油机。

HMC4300+VCM100 Engine Control Module Topology Graph

HMC4300+VCM100发动机控制模块拓扑图

Electric Parameter Collection Module
电量采集模块
VCM100

Voltage/Current Collection
电压、电流采集

CAN

RS485

Engine Control & Data Collection
发动机控制及数据采集

Engine Controller
发动机控制器
HMC4300

Cloud Monitoring Communication Module
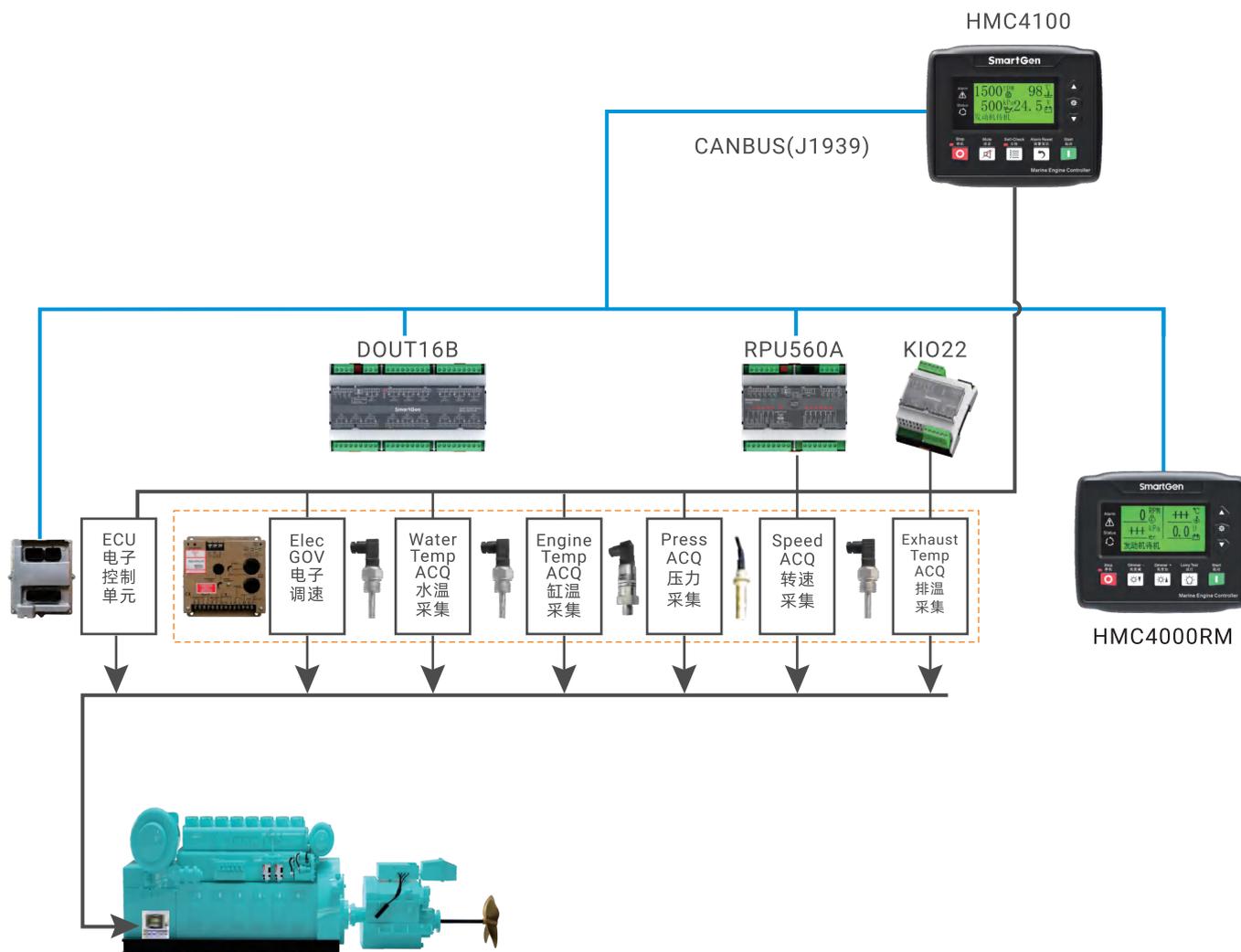云监控模块
CMM366B-4G

In the system, HMC4300 controller is used as a master controller to monitor the operation of engine, and provide protection for the engine. VCM100 module is used for collecting electric parameters, and providing alarm protection, which communicates with master controller via the CAN bus. CMM366B-4G cloud monitoring communication module can communicate with master controller via the RS485 port, and connect with cloud platform via 4G network. It can also realize the GPS positioning function.

本系统中HMC4300为主控制器用于监控发动机运行及发动机保护，VCM100用于电参量的采集及报警保护，通过can总线与主控制器通讯。CMM366B-4G云猫模块通过RS485与主控制器进行通讯，通过4G信号与云平台通讯，同时可实现GPS定位功能。
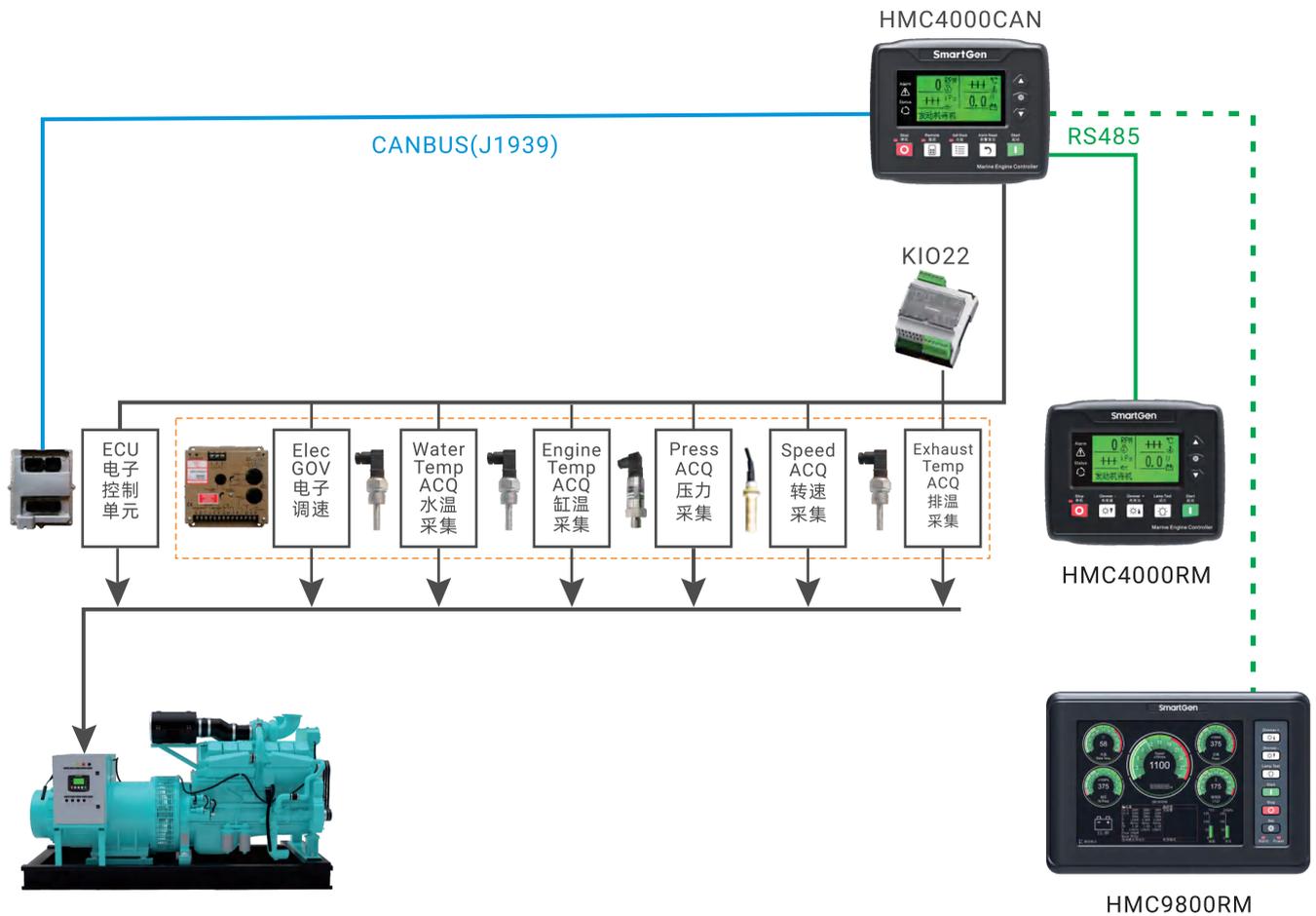
HMC4100 Engine Control Module Topology Graph
HMC4100发动机控制模块拓扑图

HMC4100

CANBUS(J1939)

DOUT16B   RPU560A   KIO22

| ECU 电子控制单元 | Elec GOV 电子调速 | Water Temp ACQ 水温采集 | Engine Temp ACQ 缸温采集 | Press ACQ 压力采集 | Speed ACQ 转速采集 | Exhaust Temp ACQ 排温采集 |

HMC4000RM

The control box topology takes HMC4100 as the master controller, and expands DOUT16B/RPU560A modules to control and protect different engines. The core functions of local control box are inside the master controller, and this control box can be used for marine diesel engines with different speed control types (mechanical/electronic/ECM speed control) by changing parameters. It is especially suitable for small high-speed unit control. It is widely used for medium and large diesel engine.

该控制箱拓扑图以HMC4100为主控制器，可根据需要外扩DOUT16B/RPU560A等模块实现对不同种类发动机的控制与保护。机旁控制箱的核心功能均内置在主控制器中，改变主控制器参数即可将该控制箱用于不同调速类型（机械调速、电子调速和ECM控制）的船用柴油机。特别适用于小型高速机控制。广泛应用于中大型柴油机。

HMC4000 Engine Control Module Topology Graph
HMC4000发动机控制模块拓扑图

HMC4000CAN

CANBUS(J1939)

RS485

KIO22

| ECU 电子控制单元 | Elec GOV 电子调速 | Water Temp ACQ 水温采集 | Engine Temp ACQ 缸温采集 | Press ACQ 压力采集 | Speed ACQ 转速采集 | Exhaust Temp ACQ 排温采集 |

HMC4000RM

HMC9800RM

The control box topology takes HMC4000 as the master controller with electricity monitoring function. It can flexibly select controller models according to controlled engine speed control type (mechanical/electronic speed control for HMC4000MPU,ECM speed control for HMC4000CAN). The core functions of local control box are inside the master controller, and it is suitable for small diesel genset control.

该控制箱拓扑图以HMC4000为主控制器，具备电量监测功能，根据被控发动机的调速类型灵活选择控制器型号（机械调速、电子调速采用HMC4000MPU, ECM调速采用HMC4000CAN）。机旁控制箱的核心功能均内置在主控制器中，特别适用于小型柴油发电机组控制。

HMC9100A/S
Diesel Engine Controller
柴油发动机控制器

HMC9000A/S
Diesel Engine Controller
柴油发动机控制器

HRM3300
Remote Control Module
远程监控模块

Model/型号	HMC9100A	HMC9100S	HMC9000A	HMC9000S	HRM3300
Display/显示器	5-inch TFT-LCD (800*480) 5英寸彩屏		4.3-inch TFT-LCD(480*272) 4.3英寸彩屏		
Operation Panel/操作面板	Silicon Rubber/硅胶				
Language/控制器语言	Chinese＆English/中文＆英文				
Digital Input/开关量输入口		18			
K-type Thermocouple Input K型热电偶输入		2			
Relay Output/继电器输出口		8			
Transistor Output/晶体管输出口		8			
HMC9100RM Controller Extension HMC9100RM控制器扩展	●				
HRM3300 Controller Extension HRM3300控制器扩展			●		
RPU560A Module Extension RPU560A模块扩展			●		
RPU560B Module Extension RPU560B模块扩展	●				
AIN23 Module Extension AIN23模块扩展		●			
AIN24 Module Extension AIN24模块扩展				●	
AIN16-PT Module Extension AIN16-PT模块扩展				●	
AIN16-C Module Extension AIN16-C模块扩展				●	
AIN16-M01 Module Extension AIN16-MO1 模块扩展		●		●	
DIN16A Module Extension DIN16A模块扩展		●		●	
DOUT16B Module Extension DOUT16B模块扩展			●		
AIN8 Module Extension AIN8模块扩展		●			
HMP300 Module Extension HMP300模块扩展			●		
Comm. Port/通讯接口	RS485/USB*2/ETHERNET*2		RS485/USB		LINK/USB
CANBUS Port Extension 扩展CANBUS接口			●		
Remote CANBUS Port 远程CANBUS接口			●		
DC Supply/直流工作电源范围	DC(18~35)V		DC(18~35)V		
Case Dimensions/外形尺寸(mm)	242*178*54(L*W*H)		266*182*45(L*W*H)		
Panel Cutout/安装尺寸(mm)	241*160		214*160		
Operating Temp./工作温度	(-25~+70)℃		(-25~+70)℃		

HMC6000A
Marine Engine Controller
船用发动机控制器

HMC6000RM
Remote Monitoring Controller
远程监控控制器

Model/型号	HMC6000A	HMC6000RM
Display/显示器	LCD(132*64)	
Language/控制器语言	Chinese＆English/中文＆英文	
Operation Panel/操作面板	Silicon Rubber/硅胶	
HMC9800RM Remote Monitoring Extension HMC9800RM远程监控扩展	●	
DOUT16B Module Extension DOUT16B模块扩展	●	
RPU560A Module Extension RPU560A模块扩展	●	
HMC6000RM Controller Extension HMC6000RM控制器扩展	●	
Comm. Port/通讯接口	RS485/LINK	LINK
CANBUS (J1939) Port CANBUS (J1939) 接口	●	
CANBUS Port Extension /Remote CANBUS Port 扩展CANBUS接口/远程CANBUS接口	(Share One Port/共用一个接口)	Remote CANBUS/远程CANBUS
Relay Output/继电器输出口	8	
Transistor Output/晶体管输出口	9	
Digital Input/开关量输入口	10	
Analogue Input/模拟量输入口	2(Resistance-type)+4(Resistance-type/ Current-type/Voltage-type)Multiplexed 2(电阻型) + 4(电阻型 /电流型 /电压型) 复用	
DC Supply/直流工作电源范围	DC(8~35)V	
Case Dimensions/外形尺寸(mm)	197*152*47(L*W*H)	
Panel Cutout/安装尺寸(mm)	186*141	
Operating Temp./工作温度	(-25~+70)℃	

HMC4300
Diesel Engine Controller
柴油发动机控制器

HMC4300RM
Remote Monitoring Controller
远程监控控制器

Model/型号	HMC4300	HMC4300RM
Display/显示器	4.3-inch TFT-LCD(480*272) 4.3英寸彩屏	
Language/控制器语言	Chinese＆English/中文＆英文	
Operation Panel/操作面板	Silicon Rubber/硅胶	
RPU560A Module Extension RPU560A模块扩展	●	
RPU560B Module Extension RPU560B模块扩展	●	
Comm. Port/通讯接口	RS485/USB	
CANBUS (J1939) Port CANBUS (J1939) 接口	●	
CANBUS Port Extension /Remote CANBUS Port 扩展CANBUS接口/远程CANBUS接口	(Share One Port/共用一个接口)	
Relay Output/继电器输出口	3	
Digital Input/开关量输入口	4	
Analogue Input/模拟量输入口	4	
DC Supply/直流工作电源范围	DC(8~35)V	
Case Dimensions/外形尺寸(mm)	127*115*86(L*W*H)	
Panel Cutout/安装尺寸(mm)	115*103	
Operating Temp./工作温度	(-25~+70)℃	

HMC4000RM
Remote Monitoring Controller
远程监控控制器

HMC4000CAN
Marine Engine Controller
船用发动机控制器

HMC4000MPU
Marine Engine Controller
船用发动机控制器

HMC4100
Marine Engine Controller
船用发动机控制器

Model/型号	HMC4000RM	HMC4000CAN	HMC4000MPU	HMC4100
Display/显示器	LCD(132*64)			
Language/控制器语言	Chinese＆English/中文＆英文			
Operation Panel/操作面板	Silicon Rubber/硅胶			
Power Acquisition and Display 电量采集及显示		Configurable / 可配置		
HMC4000RM Controller Extension HMC4000RM控制器扩展			●	
RPU560A Module Extension RPU560A模块扩展				●
DOUT16B Module Extension DOUT16B模块扩展				●
Comm. Port(RS485)/通讯接口 RS485接口		●		
CANBUS Port CANBUS接口	●			●
Relay Output/继电器输出口		6		7
Digital Input/开关量输入口		3+2(Digital/Analogue Multiplexed/开关量/模拟量复用)		6
Analogue Input/模拟量输入口		2+2(Digital/Analogue Multiplexed/开关量/模拟量复用)		6
Operating Temp./工作温度	(-25~+70)℃			
DC Supply/直流工作电源范围	DC(8～35)V			
Panel Cutout/安装尺寸(mm)	116*90			
Case Dimensions/外形尺寸(mm)	135*110*44(L*W*H)			

▶ Measuring Range/测量范围：
(0~1)MPa/(0~0.4)MPa

▶ Signal Output/信号输出：
(4~20)mA

▶ Screw Thread:
G1/4 Standard Pipe Thread
螺纹：G1/4标准管螺纹

▶ Measurement Accuracy: Class 0.25
测量精度：0.25级

▶ IP/防护等级:IP65

SGPT110/SGPT110-0.4
Pressure Transmitter
压力变送器

▶ Power Supply Range/供电范围：
DC 12V~36V（DC 24V）

▶ Measuring Range/测压范围：
(0~1)MPa/(0~0.4)MPa

▶ Signal Output/信号输出：
4mA ~ 20mA

▶ Measuring Accuracy: Class 0.5
测量精度:0.5级

▶ IP/防护等级:IP65

SGPT110A/SGPT110A-0.4
Pressure Transmitter
压力变送器

MMU8N
Remote Monitoring Module
远程监控模块

MMU15N
Remote Monitoring Module
远程监控模块

Model/型号	MMU8N	MMU15N
Main Functions 主要功能	Adopt color touch screen, communicate with main controller via RS485, realize data monitoring, parameter setting and other functions for the main controller. 采用彩色触屏，可通过RS485与主控制器进行通信，实现对主控制器的数据监控及参数设置等功能。	
Display/显示器	8-inch LCD/8英寸LCD	15-inch capacitive touch LCD/15英寸电容触摸显示屏
Language/控制模块语言	Chinese＆English/中文＆英文	
Brightness Adjustment/亮度调节	Adjustable/可调节	
Operation Permission/操作权限	Engineer, technician,operator/工程师、技术员、操作员	
CANBUS	1路	
Monitor Port(RS485) 监控接口(RS485)	4路	
Ethernet/以太网	1路	
DC Supply 直流工作电源范围	DC(10~36)V	
Case Dimensions 外形尺寸(mm)	221*163*51(L*W*H)	377*316*76(L*W*H)
Panel Cutout 安装尺寸(mm)	205*147	359.5*298.2
Operating Temp. 工作温度	(-25~+70)°C	

▶ Measuring Range/测温范围：
(-20~+150)℃
▶ Output Mode:
Three-wire System Resistance Output
输出方式：三线制电阻输出
▶ Screw Thread:
G1/2 Standard Pipe Thread
螺纹：G1/2标准管螺纹
▶ Measurement Accuracy: Class 0.25
测量精度：0.25级
▶ IP/防护等级:IP65

SGWS115
Temperature Sensor
温度传感器

▶ Measuring Range/测温范围：
(-20~+150)℃
▶ Output Mode:
Three-wire System Resistance Output
输出方式：三线制电阻输出
▶ Screw Thread:
G1/2 Standard Pipe Thread
螺纹：G1/2标准管螺纹
▶ Measurement Accuracy Class: Class 0.25
测量精度：0.25级
▶ IP/防护等级:IP65

SGWS115A
Temperature Sensor
温度传感器

RPU560A

RPU560A Redundant Protection Unit
安保模块

Engine redundant protection module
发动机安保模块
CANBUS接口/CANBUS Interface

Case Dimensions
外形尺寸(mm):107.6*89.7*60.7

RPU560B

RPU560B Redundant Protection Unit
安保模块

2-way Analog Input
2路模拟量输入
CANBUS接口/CANBUS Interface

Case Dimensions
外形尺寸(mm):107.6*89.7*60.7

DIN16A

DIN16A Digital Input Module
开关量输入模块

16-way digital input module
16路开关量输入模块
CANBUS接口/CANBUS Interface

Case Dimensions
外形尺寸(mm):107.6*89.7*60.7
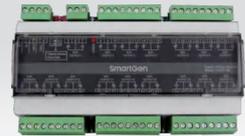
DOUT16B

DOUT16B Digital Output Module
开关量输出模块

An expansion module with 16 auxiliary
digital output channels.
16路开关量输出模块
CANBUS接口/CANBUS Interface

Case Dimensions
外形尺寸(mm):161.6*89.7*60.7

AIN8

AIN8 Analog lnput Module
模拟量输入模块

An expansion module with 8 analog
input channels, and input types can
be set PT100, (4~20)mA, (0~5)V.
8路模拟量输入模块，输入类型均可设置
PT100, (4~20)mA, (0~5)V。
CANBUS接口/CANBUS Interface

Case Dimensions
外形尺寸(mm):107.6*89.7*60.7

AIN16-PT

AIN16-PT Analog Input Module
模拟量输入模块

An expansion module with 16 analog
acquisition channels for PT100.
16路PT100模拟量采样模块
CANBUS接口/CANBUS Interface

Case Dimensions
外形尺寸(mm):161.6*89.7*60.7

AIN16-C

AIN16-C Analog Input Module
模拟量输入模块

An expansion module with 16
analog input channels and
16(4~20)mA+3 speed acquisition
16路(4~20)mA+3路转速采集
CANBUS接口/CANBUS Interface

Case Dimensions
外形尺寸(mm):161.6*89.7*60.7

AIN16-M01

AIN16-M01Analog Integrated Module
模拟量综合模块

8-way PT100 input, 3 speed acquisition,
4-way (4-20)mA output, 1-way (4-20)mA input
8路PT100输入，3路转速采集，4路（4-20）mA
输出，1路（4-20）mA输入
CANBUS接口/CANBUS Interface

Case Dimensions
外形尺寸(mm):161.6*89.7*60.7

SG81Z

Protocol Conversion Module
协议转换模块

SG81Z Protocol Conversion Module has 4
interfaces, namely RS485 interface LINK
interface, RS422 interface and CAN interface. Any
two interfaces can be converted to each other.
SG81Z协议转换模块共有四个接口:RS485接
口、LINK接口、RS422接口 、CAN接
口，任意两个接口之间可以互相转换

Case Dimensions
外形尺寸(mm):71.6*89.7*60.7

AIN24

AIN24 Analog Input Module
模拟量输入模块

With 14-way K-type thermocouple, 5-way
PT100, 5-way (4-20)mA input
具有14路K型热电偶、5路PT100、5
路（4-20）mA输入
CANBUS接口/CANBUS Interface

Case Dimensions
外形尺寸(mm):161.6*89.7*60.7

SmartGen
EST.1998

DIN16A-2

DIN16A-2 Digital Input Module
开关量输入模块

16-way digital input module
16路开关量输入模块

RS485接口/RS485 Interface

Case Dimensions
外形尺寸(mm)：107.6*89.7*60.7

DOUT16B-2

DOUT16B-2 Digital Output Module
开关量输出模块

An expansion module with 16 auxiliary digital output channels.
16路开关量输出模块

RS485接口/RS485 Interface

Case Dimensions
外形尺寸(mm)：161.6*89.7*60.7

AIN16-C-2

AIN16-C-2 Analog Input Module
模拟量输入模块

An expansion module with 16 analog input channels and 16(4~20)mA+3 speed acquisition
16路(4~20)mA+3路转速采集

RS485接口/RS485 Interface

Case Dimensions
外形尺寸(mm)：161.6*89.7*60.7

AIN24-2

AIN24-2 Analog input Module
模拟量输入模块

With 14-way K-type thermocouple, 5-way PT100, 5-way (4-20)mA input
具有14路K型热电偶、5路PT100、5路（4-20）mA输入

RS485接口/RS485 Interface
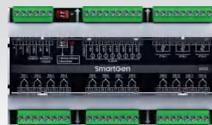
Case Dimensions
外形尺寸(mm)：161.6*89.7*60.7

AIN23

AIN23 Analog Input Module
模拟量输入模块

AIN23 Analog Input Module is a module which has 12 K-type thermocouple sensor inputs, 3 PT100 resistance type sensor inputs, 8 (4-20)mA current type sensor inputs and 1 speed sensor input.

12路K型热电偶传感器、3路PT100电阻型传感器、8路（4-20）mA电流型传感器和1路转速传感器

CANBUS接口/CANBUS Interface

Case Dimensions
外形尺寸(mm)：161.6*93*60.7

SG485-3

SG485-3 Interface Expansion Module
接口扩展模块

1-way RS485 interface to 2-way RS485 interface
1路RS485接口转换为2路RS485接口

Case Dimensions
外形尺寸(mm)：71.6*92.7*60.7

SG485-2CAN

SG485-2CAN Communication Interface Conversion Module
通讯接口转换模块

1-way RS485 to 2-way CANBUS interface and 1-way RS485 interface
1路RS485转换为2路CANBUS接口及1路RS485接口

Case Dimensions
外形尺寸(mm)：107.6*93*60.7

SGCAN300

SGCAN300 CANBUS Relay Module
CAN总线中继模块

Can realize interconversion between MSC1 and optical fiber, RS485 and optical fiber, MSC1 and MSC2.
可实现MSC1与光纤互转，RS485与光纤互转，MSC1与MSC2互转

Case Dimensions
外形尺寸(mm)：71.6*92*60.7mm

KIO22

KIO22 Analog Input/Output Module
模拟量输入输出模块

2-way K-type thermocouple to 2-way 4-20mA output
2路K型热电偶转2路4-20mA输出

LINK接口/LINK Interface

Case Dimensions
外形尺寸(mm)：71.6*93.0*60.7

MIO14

MIO14 Integrated Expansion Module
综合扩展模块

MIO14 Integrated Expansion Module is a module which has 1 speed sensor input, 6 digital inputs, 5 relay outputs, 2 analog sensor inputs, and the input signals can be configured as resistance-type, voltage-type or current-type.

1路转速传感器，6路开关量输入，5路继电器输出，两路模拟量传感器输入，输入信号电阻型、电压型和电流型可选；

CANBUS接口/CANBUS Interface

Case Dimensions
外形尺寸(mm)：71.6*92.7*60.7mm

MEM40   MEM40-RM   MGCP100B-3   HRM3300-3

MEM40
Engine Monitoring Controller/发动机监控仪

▶ It can be used for automatic control system of single electronic control engine, which can realize engine local start, stop, data measurement, display, alarm protection, and other functions;
可用于单台电控发动机自动化控制系统，实现发动机的机旁开机、停机、发动机数据测量、显示、报警保护等功能；

▶ It is equipped with remote monitoring port that can connect remote monitoring controllerto receive remote start / stop command; which can realize electronic control engine remote start, stop and other functions;
带有远程监控接口，可接入远程监控控制器，接收遥控开机、遥控停机指令；实现发动机的远程开机、停机等功能；

▶ With override mode, emergency stop button; /具有越控模式、紧急停机按钮；

▶ With local/remote, self-check, mute, alarm reset keys; /具有机旁/遥控、自检、消音、报警复位按键；

▶ LCD displays speed, water temperature, oil temperature, oil pressure, power voltage, start times and accumulated running time;
LCD显示转速、水温、油温、油压、电源电压、开机次数和累计运行时间；

▶ With alarm log and start/stop event log function;/具有报警记录和起停机事件记录功能；

▶ Working temperature: (-25~70)℃;/工作温度：(-25~70)℃；

▶ Overall dimensions (L*W*H)(mm): 282 x 160.5 x 230;
外形尺寸(长*宽*高)(mm)：282 x 160.5 x 230；

▶ Cutout size (L*W)(mm): 160*65, monitoring controller comes with 4 shock absorbers, 4 M8 screws are required for installation (come with or add flat washers).
安装尺寸：(长*宽)(mm)：160*65，监控仪自带4个减震器，安装需要4个M8的螺丝（需自带或增加平弹垫）。

MEM40-RM
Remote Monitoring Module/远传模块

▶ It is equipped with MEM40 engine monitoring control box, without setting any parameters, which can automatically synchronize MEM40 data and configuration information;
配套MEM40发动机监控仪控制箱，无需设置任何参数，自动同步MEM40数据和配置信息；

▶ With power switch, emergency stop, override mode button;
具有电源开关，紧急停机、越控模式按钮；

▶ Communicate with monitoring control box via CANBUS;
通过CANBUS总线与监控仪控制箱通讯；

▶ With alarm reset, mute, dimmer key;/具有报警复位、消音、亮度调节按键；

▶ Under remote mode, it can remotely control engine start, stop, alarm reset, etc.;
在遥控模式下，可远程控制发动机的起动、停止，报警复位等；

▶ LCD brightness can be adjusted/LCD亮度可调整；

▶ Cutout size (L*W) (mm): 262*205/开孔尺寸(长*宽)(mm)：262*205；

▶ Protection level: IP44/防护等级：IP44；

▶ Working voltage: DC(8~35)V./工作电压：DC(8~35)V。

Remark: The overall and installation dimensions can be adjusted according to demand, the dimensions listed in the brochure are for reference only. The functions listed in the brochure are modeled on HMC9000 series controller, which can be replaced with HMC4000 series and HMC6000 series controllers as needed for specific applications.

备注：外形尺寸和安装尺寸可根据需要进行调整，样册中所列尺寸仅供参考。样册所列功能以HMC9000系列控制器为蓝本，具体应用时可根据需要替换成HMC4000系列和HMC6000系列控制器。

MGCP100B-3
Diesel Engine Control Panel/柴油机控制屏

▶ With the functions of local start/stop, remote control start/stop, data measurement & display, alarm protection and etc. of the diesel engine;
具有柴油发动机机旁开机、停机、遥控开机、停机、数据测量、显示、报警保护等功能；

▶ With the remote monitoring interface to realize the remote start/stop functions of the engine by receiving the remote control start and automatic start instructions;
具有远程监控接口，通过接收遥控开机、自动开机指令，实现发动机的远程开机、停机等功能；

▶ With override mode, local/remote mode, emergency stop and start, normal mode/emergency mode knob;
具有越控模式、机旁/遥控模式、紧急停机、紧急起动、正常模式/紧急模式旋钮；

▶ With self-check, alarm reset, mute, and Lamp test button;
具有自检、报警复位、消音、试灯按键；

▶ LCD can display the water temperature, oil temperature, oil pressure, speed, battery voltage, running time, start times, etc. of the engine;
LCD显示发动机水温、油温、油压、转速、电池电压、运行时间、开机次数等；

▶ Real-time clock, alarm information display and event log, convenient for maintenance and troubleshooting;
具有实时时钟、报警信息显示和历史记录，方便维护和故障查询；

▶ Operating voltage/工作电压：DC(18~35)V；

▶ Working Temperature:(-25~+70)℃;
工作温度：(-25~+70)℃；

▶ CCS certification, IP44 protection level, BV certification；
具有CCS认证，防护等级IP44，BV认证；

▶ Typical overall dimension: length*width*height (mm): 400*400*200 (without shock absorber, dimension can be adjusted)；
典型外形尺寸：长*宽*高(mm):400*400*200(不含减震器,尺寸可根据需要调整)；

▶ Typical installation dimension: length*width (mm): 330*330, 4 shock absorbers M10 screw hole.
典型安装尺寸：长*宽（mm）:330*330,4个减震器M10螺孔。

HRM3300-3
Remote Control Panel/远程控制屏

▶ The remote control box with HMC9000A/S diesel engine controller, it can expand up to 16 HRM3300-3;
配套HMC9000A/S柴油发动机控制器的远程控制箱，可最多扩展16个HRM3300-3；

▶ With emergency stop, power switch, override mode switch, and emergency stop, override mode light indication function;
具有紧急停机、电源开关、越控模式开关，并具有紧急停机、越控模式灯指示功能；

▶ Communicate with diesel local control box via CANBUS;
With self-check, alarm reset, mute, and Lamp test button;
通过CANBUS总线与机旁控制箱通讯;具有自检、报警复位、消音、试灯按键；

▶ In the remote monitoring mode, it has remote control start/stop, data measuring, alarm display functions, etc;
在远程监控模式，可以远程控制开关机、数据测量、报警显示等功能；

▶ Adjustable LCD display brightness /LCD显示亮度可调；

▶ Cutout size:332mm x 212mm/开孔尺寸：332mm x 212mm；

▶ Protection level: IP44 /防护等级：IP44；

▶ Operating voltage/工作电压：DC(18~35)V。

MGCP100B-2/4
Diesel Control Panel/柴油机控制屏

▶ Designed for control system of medium marine diesel engine;
适用于中型船舶柴油机控制系统；

▶ Controller can expand remote monitoring module(HMC6000RM) via CANBUS to achieve remote control of engine;
控制器可通过CANBUS扩展远程监控模块（HMC6000RM），实现对发动机的远程监控；

▶ Controller can expand a 16-channel relay output module(DOUT16B) via CANBUS to realize alarms receiving and output controlling;
控制器可通过CANBUS扩展16路继电器输出模块（DOUT16B）实现多种报警和控制输出；

▶ Controller can expand security module(RPU560A) via CANBUS to achieve multiple protection of engine;
控制器可通过CANBUS扩展安保模块(RPU560A)，实现对发动机的多重保护；

▶ Maximum 6 sensor inputs can be connected to controller, four of them are available for the following types: (0~1)K resistance, (0~5)V voltage, (4~20)mA current;
控制器可接入最多6路传感器输入，其中后4路可实现(0~1)K电阻型、(0~5)V 电压型、(4~20)mA电流型的的多种类型可选择；

▶ Dual-power transfer module (BTM300) can be fitted with controller to achieve uninterrupted switching of dual power supply and fault alarm;
控制器可配合双电源切换模块（BTM300），实现两路电源的不间断切换和故障报警；

▶ Alarm threshold and protection delay of each sensor can be set by controller to protect every measuring point accurately;
控制器可分别对每一路传感器设置保护阈值和报警延时，实现对每一个测量点的精准保护；

▶ All data can be set on control panel at the site, conveniently and efficiently;
参数均可现场通过面板进行设定，方便快捷；

▶ Operating voltage/工作电压：DC(18~35)V；

▶ working temperature:(-25~+70)℃;
工作温度：(-25~+70)℃;

▶ CCS certification, IP44 protection level, BV certification
具有CCS认证，防护等级IP44；BV认证；

▶ Case dimensions(L*W*H)/外形尺寸(长*宽*高)(mm)：650*480*200;

▶ Panel cutout(L*W)(mm): 580*410, 4 shock absorbers(M10 screw).
安装尺寸(长*宽)(mm)：580*410，4个减震器(M10螺孔)。

Remark: The overall and installation dimensions of MGCP100B-3/MGCP100B-2/MGCP100L-2 can be adjusted according to demand, the dimensions listed in the brochure are for reference only. The functions listed in the brochure are modeled on HMC9000 series controller, which can be replaced with HMC4000 series and HMC6000 series and HMC9100 series controllers as needed for specific applications.

备注：MGCP100B-3、MGCP100B-2、MGCP100L-2外形尺寸和安装尺寸可根据需要进行调整，册中所列尺寸仅供参考。样册所列功能以HMC9000系列控制器为蓝本，具体应用时可根据需要替换成HMC4000系列/HMC6000系列/HMC9100系列控制器。

MGCP100L-2/4
Diesel Control Panel/柴油机控制屏

▶ Designed for control system of large marine diesel engine;
适用于大型船舶柴油机控制系统；

▶ 4.3 inches colour LCD with backlight, multilingual interface (including English, Chinese);
4.3吋彩屏带背光,可选中/英文显示；

▶ Controller can expand 16 remote monitoring modules(HRM3300) at most via CANBUS to achieve remote monitoring of engine;
控制器可通过远程CANBUS扩展最多16块远程监控模块（HRM3300），实现对发动机的远程监控；

▶ Controller can expand two 16-channel relay output modules(DOUT16B) at most via CANBUS to realize alarms receiving and output controlling;
控制器可通过扩展CANBUS扩展最多2块16路继电器输出模块(DOUT16B)实现多种报警和控制输出；

▶ Controller can expand two PT100 expansion modules(AIN16-PT) at most via CANBUS to realize PT100 analog data acquisition;
控制器可通过扩展CANBUS扩展最多2块PT100扩展模块(AIN16-PT)，实现多路PT100模拟量数据采集；

▶ Controller can expand two expansion modules(AIN16-C) at most via CANBUS to realize (4~20)mA signal acquisition;
控制器可通过扩展CANBUS扩展最多2块(4~20)mA扩展模块(AIN16-C)，实现多路(4~20)mA信号采集；

▶ Controller can expand two analog integrated modules(AIN16-M01) at most via CANBUS to realize temperature, pressure and speed acquisition as well as (4~20)mA signal outputting;
控制器可通过扩展CANBUS扩展最多2块模拟量综合模块(AIN16-M01)，实现多路温度、压力、转速数据采集，同时可配置输出(4~20)mA信号；

▶ Controller can expand security module(RPU560A) via CANBUS to achieve multiple protection of engine;
控制器可通过扩展CANBUS扩展安保模块(RPU560A)，实现对发动机的多重保护；

▶ Controller can control and communicate with dozens of EFI engines with J1939 interface via CANBUS;
控制器可通过扩展CANBUS和具有J1939接口的数十种电喷发动机进行控制及通信；

▶ Real-time clock , alarm information display and event log make it convenient for maintenance and troubleshooting;
具有实时时钟、报警信息显示和历史记录，方便维护和故障查询；

▶ All data can be set on control panel at the site, conveniently and efficiently;
参数均可现场通过面板进行设定，方便快捷；

▶ Operating voltage/工作电压：DC(18~35)V；

▶ working temperature:(-25~+70)℃;
工作温度：(-25~+70)℃;

▶ CCS certification, IP44 protection level, BV certification
具有CCS认证，防护等级IP44；BV认证；

▶ MGCP100L:Case dimensions(L*W*H)(mm): 900*600*220;
外形尺寸(长*宽*高)(mm)：900*600*220；

▶ MGCP100L-2:Case dimensions(L*W*H)(mm): 480*270*1020.
外形尺寸(长*宽*高)(mm)：480*270*1020。

POWER MANAGEMENT CONTROLLER/功率管理控制器

HMC6
Power Management Controller
功率管理控制器

Model/型号	HMC6
Main Functions 主要功能	It is a standard power management system for marine applications. It is the one where start priority and other power management-related functions are calculated. The system can handle up to 16 diesel gensets to make automatic synchronization and load sharing. It has heavy consumer control, NEL trip and light load functions. It is suitable for 3-phase 4-wire, 3-phase3-wire, single phase 2-wire and 2-phase 3-wire systems with frequency 50/60Hz. 一套为船舶应用领域量身定制的功率管理系统。负责发电机起动优先级和其它相关功率管理功能的计算，能够实现16台发电机组的自动同步及负荷分配。具有重载问询、非重要负载脱扣、轻载有效等功能。适合于三相四线、三相三线、单相两线、两相三线、50/60Hz系统。
Display/显示器	4.3-inch TFT- LCD (480*272)/4.3 英寸彩屏
Operation Panel 操作面板	Silicon Rubber/硅胶
Language 控制模块语言	Chinese＆English＆Others/中文＆英文＆其他
Digital Input 开关量输入口	7-way programmable input+3-way fixed input+2-way analog/digital multiplexed input. 7路可编程输入+3路固定输入+2路模拟量/开关量复用输入
Relay Output 继电器输出口	9-way programmable output+6-way fixed output/9路可编程输出+6路固定输出
AC System/交流制式	1P2W/2P3W/3P3W/3P4W
AC Voltage/交流电压范围	AC(15~360)V(ph-N)
AC Frequency/交流频率	50/60Hz
kW/Amp Detecting＆Display 功率/电流检测及显示	●
Monitor Port/监控接口	RS485
Programming Port/编程接口	USB/RS485
RTC & Event Log 实时时钟及历史记录	●
GOV/调速控制	(-10~10)V/(-20~20)mA
AVR/调压控制	(-10~10)V/(-20~20)mA
DIN16A Module Extension DIN16A模块扩展	●
DOUT16B Module Extension DOUT16B模块扩展	●
PLC Function/PLC功能	●
3-class Password Protection 3级密码保护	●
Safety Mode/安全模式	●
DC Supply 直流工作电源范围	DC(8~35)V
Case Dimensions 外形尺寸(mm)	266*182*45(L*W*H)
Panel Cutout 安装尺寸(mm)	214*160 (L*W)
Operating Temp. 工作温度	(-25~+70)℃

HPM6D Display Module
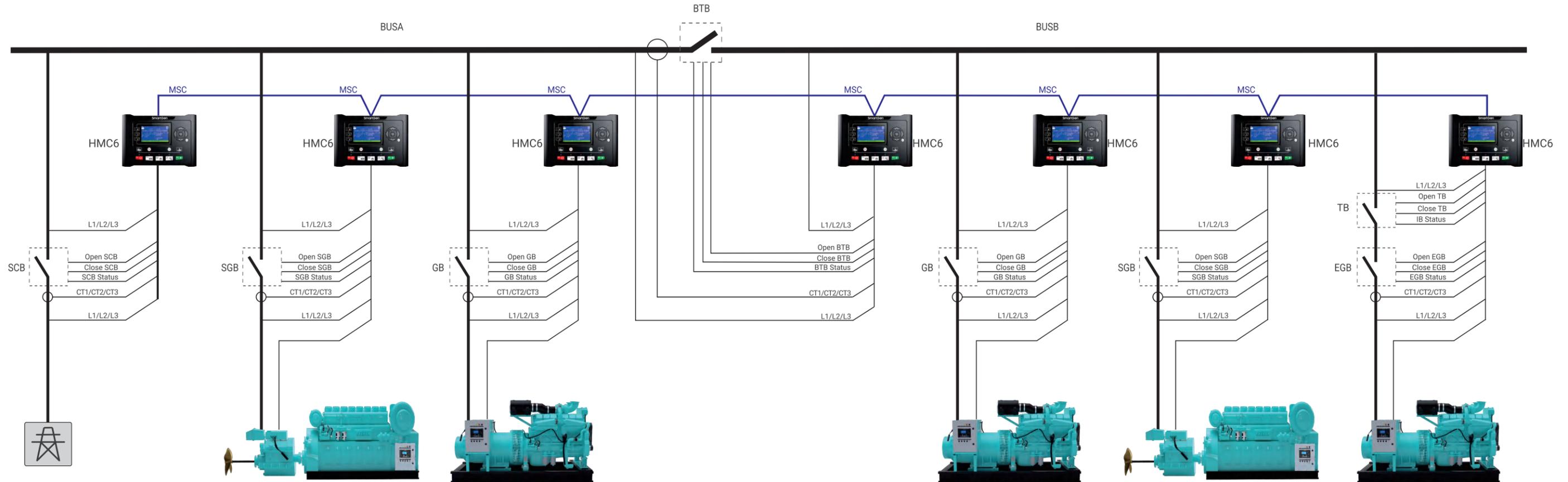HPM6D 显示面板

HPM6 Master Control Module
HPM6 主控面板

Power Management Controller
功率管理控制器

Model/型号	HPM6
Main Functions 主要功能	It is a standard power management system for marine applications.It is the one where start priority and other power management-related functions are calculated.The system can handle up to 20 diesel gensets to make automatic synchronization and load sharing.HPM6 power management controller adopts split-type design, which is composed of display module HPM6D and master control module HPM6.Accuracy: 0.5% HPM6是一套为船舶应用领域量身定制的功率管理系统。负责发电机组起动优先级和其它相关功率管理的计算，能够实现20台发电机组的自动开停机、同步及负荷分配。HPM6 功率管理控制器采用分体式设计，由显示模块 HPM6D 和主控模块 HPM6 组成。精度等级：0.5%
Display/显示器	4.3-inch TFT- LCD (480*272)/4.3 英寸液晶显示
Operation Panel/操作面板	Silicon Rubber/硅胶
Language/控制模块语言	Chinese&English& Others/中文＆英文＆其他
Digital Input/开关量输入口	20
Output/输出口	7 relay outputs+13 transistor output ports/ 20（7个继电器输出口+13晶体管输出口）
AC System/交流制式	1P2W/2P3W/3P3W/3P4W
AC Voltage/交流电压范围	AC(15～520)V(ph-N)
AC Frequency/交流频率	50/60Hz
kW/Amp Detecting & Display 功率/电流检测及显示	●
Monitor Port/监控接口	USB/RS485/CAN/以太网
Event Log/历史记录	最多500
Alarm Record/报警记录	最多500
Programming Port/编程接口	USB/以太网
RTC & Event Log/实时时钟及历史记录	●
USB HOST	●
GOV 调速控制 / AVR 调压控制	●
Custom Protocol 自定义协议 / Custom SLD 自定义单线图	●
Black Box Function 黑匣子功能 / Harmonic Monitor 谐波监测	●
PLC Function PLC功能 / I/O Extension I/O扩展	●
HC Inquiry 重载问询 / Multilevel Protection 多级保护	●
DIN16A Module Extension DIN16A模块扩展	●
DOUT16B Module Extension DOUT16B模块扩展	●
3-class Password Protection 3级密码保护 / Safety Mode 安全模式	●
DC Supply 直流工作电源范围	DC(8～35)V
Case Dimensions 外形尺寸(mm)	HPM6D：220*130* 52(L*W*H); HPM6M：250*165* 83(L*W*H)
Panel Cutout 安装尺寸(mm)	HPM6D：201*111(L*W)， embedded-in panel mounting HPM6M: hole distance237.5*152.5(L*W)，aperture φ5.5*4, screw fixed installation HPM6D：201*111(L*W)，嵌入式面板安装; HPM6:孔距237.5*152.5(L*W)，孔径:φ5.5*4,螺钉固定安装
Operating Temp. 工作温度	(-25~+70)℃

POWER MANAGEMENT SOLUTION (HMC6)
功率管理解决方案（HMC6）

BTB

BUSA

BUSB

MSC   MSC   MSC   MSC   MSC   MSC   MSC

HMC6   HMC6   HMC6   HMC6   HMC6   HMC6   HMC6

L1/L2/L3   L1/L2/L3   L1/L2/L3   L1/L2/L3   L1/L2/L3   L1/L2/L3   L1/L2/L3

SCB	Open SCB / Close SCB / SCB Status
SGB	Open SGB / Close SGB / SGB Status
GB	Open GB / Close GB / GB Status

Open BTB / Close BTB / BTB Status

Open GB / Close GB / GB Status

Open SGB / Close SGB / SGB Status

TB — Open TB / Close TB / IB Status

EGB — Open EGB / Close EGB / EGB Status

CT1/CT2/CT3

L1/L2/L3

Shore Connection
岸电连接

Shaft Genset 1
轴带发电机组1

Diesel Genset 1
柴油发电机组1
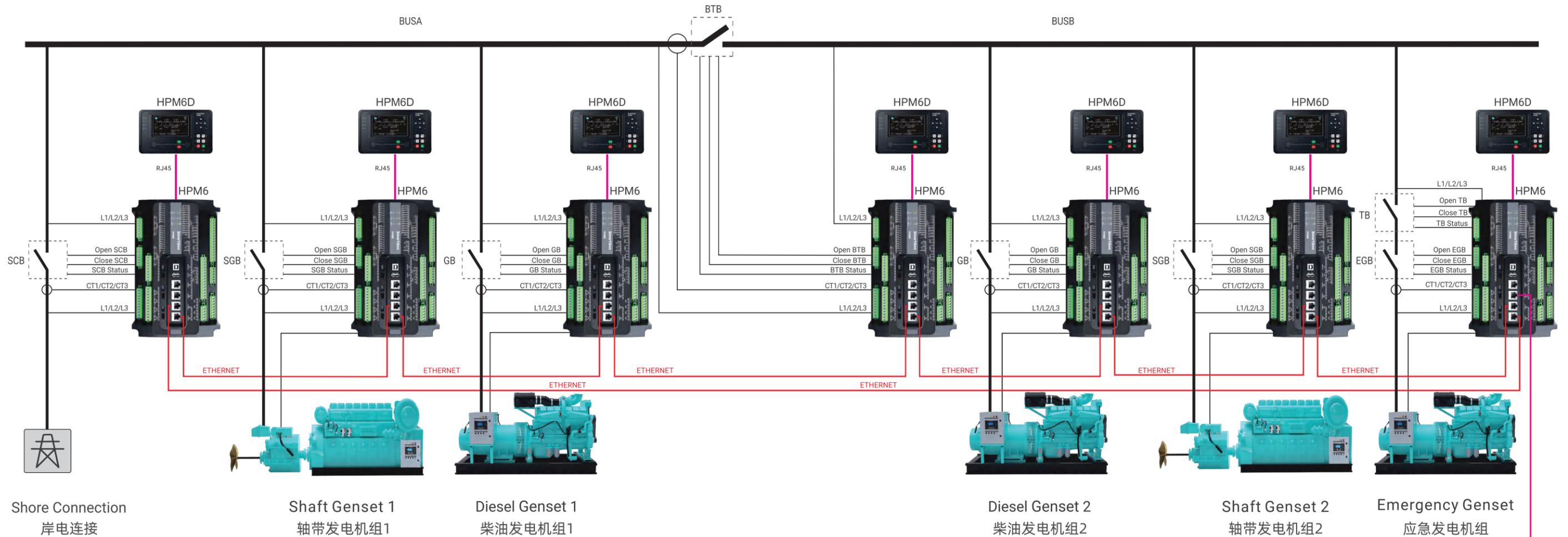
Diesel Genset 2
柴油发电机组2

Shaft Genset 2
轴带发电机组2

Emergency Genset
应急发电机组

▶ Suitable for 1P2W/2P3W/3P3W/3P4W systems with frequency 50Hz/60Hz；
   适用于1P2W/2P3W/3P3W/3P4W 电源50Hz/60Hz系统；

▶ Real-time clock, alarms information displaying and event log make it convenient for maintenance and faults finding；
   具有实时时钟、报警信息显示和历史记录，方便维护和故障查询；

▶ 4.3 inches colour LCD with backlight, multilingual interface (including English, Chinese)；
   4.3吋彩屏带背光，可选中/英文显示；

▶ The automatic power station system consisting of up to 16 main diesel gensets, 3 shaft gensets, 3 shore power gensets, 2 harbor gensets and 5 tie switches can be realized, and it supports ring busbar control；
   最多可实现16台主用柴发、3台轴带发电、3路岸电、2台停泊发电机组和5台联络开关组成的自动电站系统，支持环形母排控制；

▶ Can control GOV and AVR to achieve automatic speed/voltage regulating, synchronization and load sharing；
   具有控制GOV和AVR的功能，可以实现自动调速、调压、同步、及负荷均分；

▶ With CCS、BV certificate/具有CCS、BV认证

▶ All-in-one design./一体式设计。

▶ Control and protection for engine: start/stop of the gen-set and protection of engine's various operating data；
   具有发动机控制和保护功能，可对发动机的起动、停机进行控制，对发动机的各种运行参数进行保护；

▶ For Bus, controller has loss of phase and phase sequence wrong detection functions; For generator,controller has over voltage, under voltage, over frequency, under frequency, over current, over power, reverse power, loss of phase, phase sequence wrong detection functions；
   母排具有缺相、逆相序检测功能,发电具有过压、欠压、过频、欠频、过流、过功率、逆功率、缺相、逆相序检测功能；

▶ withparallel/disconnect load soft transfer functions；
   具有并联/解列时负载软转移功能；

▶ Major parameters can be set via panel on the site
   绝大部分参数可现场通过面板进行设定

▶ Operating voltage/工作电压：DC(8～35)V；

▶ Operating condition: Temperature: (-25~+70)℃。
   工作条件：温度：(-25~+70)℃。

POWER MANAGEMENT SOLUTION (HPM6)
功率管理解决方案（HPM6）

BTB

BUSA

BUSB

| HPM6D | HPM6D | HPM6D | HPM6D | HPM6D | HPM6D | HPM6D |

RJ45

HPM6

L1/L2/L3

SCB
Open SCB
Close SCB
SCB Status
CT1/CT2/CT3
L1/L2/L3

SGB
Open SGB
Close SGB
SGB Status
CT1/CT2/CT3
L1/L2/L3

GB
Open GB
Close GB
GB Status
CT1/CT2/CT3
L1/L2/L3

Open BTB
Close BTB
BTB Status
CT1/CT2/CT3
L1/L2/L3

GB
Open GB
Close GB
GB Status
CT1/CT2/CT3
L1/L2/L3

SGB
Open SGB
Close SGB
SGB Status
CT1/CT2/CT3
L1/L2/L3

TB
L1/L2/L3
Open TB
Close TB
TB Status

EGB
Open EGB
Close EGB
EGB Status
CT1/CT2/CT3
L1/L2/L3

ETHERNET

Shore Connection
岸电连接

Shaft Genset 1
轴带发电机组1

Diesel Genset 1
柴油发电机组1

Diesel Genset 2
柴油发电机组2

Shaft Genset 2
轴带发电机组2

Emergency Genset
应急发电机组

MMU15N

▶ HPM6 can realize up to 20 gensets automatic start/stop, synchronization and load sharing. Should the command unit fail, the power management calculations will be automatically transferred to the next available control unit. Each control unit is connected via network bus, which has device level ring redundancy function.

HPM6能够实现最多20台发电机组的自动开停机、同步及负荷分配。如果当前指令单元出现故障，功率管理计算将自动转到下一个可用控制单元。每一个控制单元都是由网络总线通信连接，具备设备级环网冗余功能。

▶ Suitable for 1P2W/2P3W/3P3W/3P4W systems with frequency 50Hz/60Hz;
适用于1P2W/2P3W/3P3W/3P4W 电源50Hz/60Hz系统；

▶ Real-time clock, alarms information displaying and event log make it convenient for maintenance and faults finding;
具有实时时钟、报警信息显示和历史记录，方便维护和故障查询；

▶ 4.3 inches colour LCD with backlight, multilingual interface (including English, Chinese Others);
4.3时彩屏带背光，可选中/英文/其他显示；

▶ Can control GOV and AVR to achieve automatic speed/voltage regulating, synchronization and load sharing;
具有控制GOV和AVR的功能，可以实现自动调速、调压、同步、及负荷均分；

▶ With CCS、BV certificate/具有CCS、BV认证

▶ Split type: master control module + display module
分体式设计:主控模块+显示模块

▶ Control and protection for engine: start/stop of the gen-set and protection of engine's various operating data;
具有发动机控制和保护功能,可对发动机的起动、停机进行控制,对发动机的各种运行参数进行保护;

▶ For Bus, controller has loss of phase and phase sequence wrong detection functions; For generator,controller has over voltage, under voltage, over frequency, under frequency, over current, over power, reverse power, loss of phase, phase sequence wrong detection functions;
母排具有缺相、逆相序检测功能,发电具有过压、欠压、过频、欠频、过流、过功率、逆功率、缺相、逆相序检测功能;

▶ With parallel/disconnect load soft transfer functions;
具有并网列时负载软转移功能;

▶ Major parameters can be set via panel on the site;
绝大部分参数可现场通过面板进行设定;

▶ Operating voltage/工作电压：DC(8~35)V;

▶ Operating condition: Temperature: (−25~+70)℃;
工作条件: 温度: (−25~+70)℃;

▶ Alarm log, which cannot be lost even in case of power outage, maximum 500 pieces can be recorded;
具有报警记录,掉电不丢失,最多可记录 500 条;

▶ Event log, which cannot be lost even in case of power outage, maximum 500 pieces can be recorded;
具有事件记录,掉电不丢失,最多可记录 500 条;

▶ User-defined protocol content function;
具有自定义协议内容功能;

▶ User-defined bus data function and built-in switch function, read other genset controller data from one controller;
具有自定义总线数据功能,内置交换机功能,可以从一台控制器读到其它机组控制器的数据;

▶ Harmonic analysis and generator voltage, current waveform display function;
具有谐波分析及发电电压电流波形显示功能;

▶ Real-time monitoring of data curve;
具有数据曲线实时监控的功能;

▶ Black box function, record data before and after alarm, do data analysis and find problem via PC software;
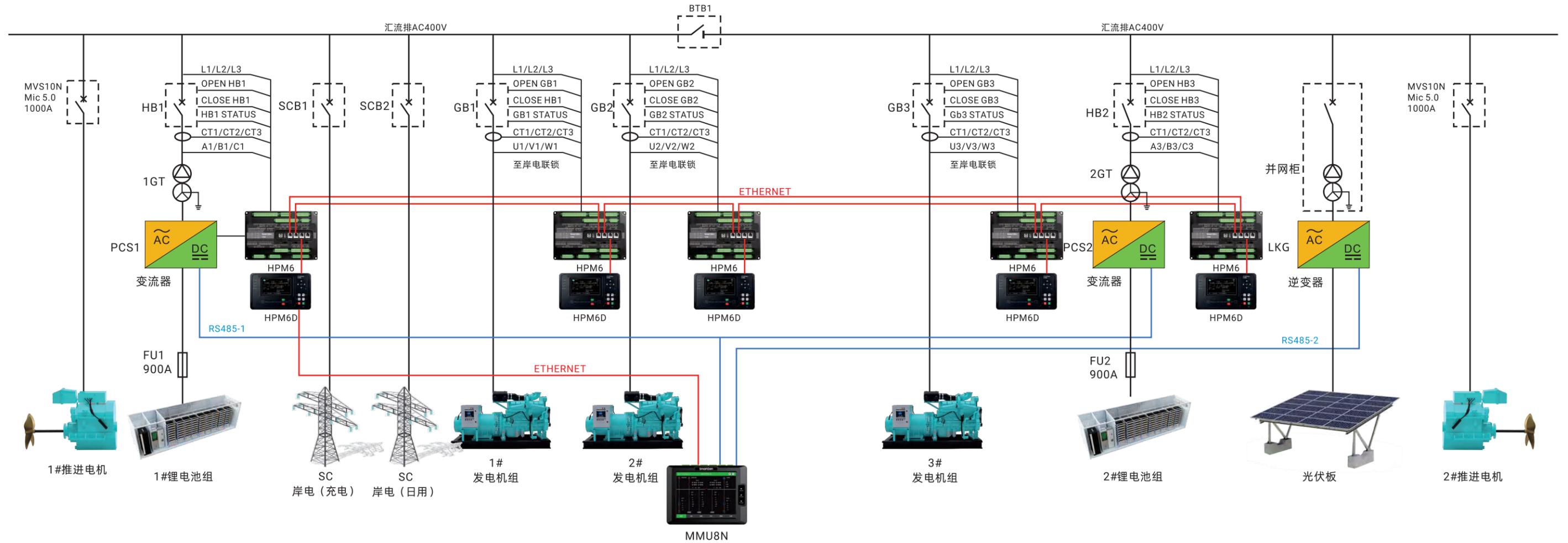具有黑匣子功能,记录报警前后的数据,通过 PC 软件进行数据分析查找问题;

▶ Master control module can record USB, open USB record via PC software to do data analysis;
主控模块具有U盘记录功能,用 PC 软件打开 U 盘记录可以进行数据分析;

▶ Display module can open USB and save configuration files.
显示模块具有用 U 盘打开、保存配置文件的功能。

AC Hybrid Energy Solution(HPM6)
交流混动解决方案(HPM6)

This solution is a multi-master AC hybrid energy solution. The marine hybrid energy management system utilizes multiple HPM6 controllers and MMU8N control system to achieve various operation modes, including mixed energy charging mode, mixed energy discharging mode, and fully electric mode. It provides safe and reliable intelligent control for ships, featuring advanced monitoring, display, and expansion capabilities.

该方案为多主站交流混动解决方案，该船用混合能源管理系统以多台HPM6配合MMU8N实现混充、混放、纯电等多种模式控制，为船舶提供安全可靠的智能控制，具有先进的监控、显示及扩展功能。

HEATERS / 加热器

HWP22
Forced Circulation Heater
强制循环水加热器

HWP40N
Forced Circulation Heater
强制循环水加热器

HWP40R/HWP60R/HWP90R/HWP120R
Forced Circulation Heater
强制循环水加热器

Model/型号	HWP22	HWP40N	HWP40	HWP40R	HWP60R	HWP90R	HWP120R
Main Functions 主要功能	Wide application on various engines coolant preheating. 适用于各种型号发动机的冷却液预加热。						
Rated Power 额定功率	2200W	4000W			6000W	9000W	12000W
Rated Voltage 额定电压	AC240V				AC420V		
Rated Current 额定电流	9.2A	16.7A			8.3A	12.5A	16.7A
Phase 相数	单相	1P2W		单相	三相		
Engine Displacement 适用发动机排量(L)	≤15L	20~30	15~30		25~50	50~75	75~100
Thermostat Range 断开及复位温度	Off/断开点：(40~60)℃ On/复位点：(25~45)℃	Off/断开点：(5~70)℃ On/复位点：(0~65)℃	Off/断开点：(5~99)℃ On/复位点：(0~94)℃	Off/断开点：(5~80)℃ On/复位点：(0~65)℃			
Default Thermostat Range 出厂温度值	Off/断开点：(40±3)℃ On/复位点：(25±3)℃	Off/断开点：(40±2)℃ On/复位点：(25±2)℃					
Insulating Resistance 绝缘电阻	≥50MΩ						
Electrical Strength 电气强度	AC 1.5kV 1min						
Inlet/Outlet Size 进出水口尺寸	3/4(Φ19.5mm)			(Φ19.5mm)			
Max.Water Pressure 承受最大水压	0.5MPa						
Pump Flow Velocity 水泵流速	30L/min(1.5m of head/ 扬程1.5米时)	40L/min(1.5m of head /扬程1.5米时)					
IP/防护等级	IP44						
Vibration 抗振动能力	(5~8)Hz;Amplitude/振幅±7.5mm; Tri-axial/三轴(8~500)Hz;a/加速度±4g;Tri-axial/三轴	(5~8)Hz; Amplitude/振幅±7.5mm;Tri-axial/3个轴分别振动14min (8~500)Hz;a/加速度=2g;Tri-axial/3个轴分别振动120min IEC 60068-2-6					
Shock 抗冲击能力	Half-sine Wave/半正弦波；a_{peak}/峰值加速度=50g; Tri-axial/三轴	50g，11ms，半正弦，三个互相垂直方向的每一方向 连续施加三次冲击，即共18次 IEC 60068-2-27					
Case Dimensions 外形尺寸(mm)	356*175*162(L*W*H)	414*175*116(L*W*H)	444*270*380(L*W*H)	444*268*435(L*W*H)			
Weight/重量(kg)	4.9	5.3	14				

HWP40-3/HWP60-3
Water Pump Forced Circulation Engine Water Heater
水泵强制循环水加热器

HFW50M
Hydronic Heater (Methanol)
液体加热器（甲醇）

Model/型号	HWP40-3	HWP60-3	HFW50M-12V	HFW50M-24V
Main Functions 主要功能	Wide application on various engines coolant preheating. 适用于各种型号发动机的冷却液预加热。		The heater is suitable for various engines with 30L displacement below, and it can be applied to special scenarios where AC power supply is unavailable. 适用于排量为30L以下的各种发动机，可应用于无交流供电的特殊场景。	
Heat Flow/热流量			5500W	
Run-time Power Consumption 运行时功耗			48W	
Fuel Consumption/油耗			1.96L/h	
Dry-burning Protection Temp. 干烧保护动作温度			Temperature difference between water temperature sensor and dry-burning sensor should be more than 100 ℃ or the temperature of dry-burning sensor is more than 100 ℃. 水温传感器与干烧传感器温差 > 100℃或者干烧传感器温度 > 100℃	
Rated Power 额定功率	4000W	6000W		
Rated Voltage 额定电压	AC420V		DC 12V	DC 24V
Operating Voltage Range 工作电压范围			DC (10~16)V	DC (20~32)V
Rated Current 额定电流	5.5A	8.3A		
Phase 相数	3P3W			
Engine Displacement 适用发动机排量(L)	(15-30)L	(25-50)L	≤30L	
Thermostat Range 断开及复位温度	Off/断开点：(5~99)℃ On/复位点：(0~94)℃		Off/断开点：(5~80℃) On/复位点：(0~75℃)	
Default Thermostat Range 出厂温度值	Off/断开点：(40±2)℃ On/复位点：(25±2)℃		Off/断开点：(40±5)℃ On/复位点：(25±5)℃	
Overheating Switch 过热开关动作温度	Off/断开点：(95±3)℃ On/复位点：(80±6)℃			
Operating Temp.Range 工作温度范围	-40℃~+70℃			
Insulating Resistance 绝缘电阻	≥50MΩ			
Electrical Strength 电气强度	AC 1.5kV 1min			
Inlet/Outlet Size 进出水口尺寸	3/4"(Φ19.5mm)		Φ19.5mm	
Max.Water Pressure 承受最大水压	0.5MPa		0.5MPa	
Pump Flow Velocity 水泵流速	40L/min(1.5m of head/ 扬程1.5米时)		17L/min (1.5m of head)/扬程1.5米时17L/min	
IP/防护等级	IP44			
Vibration 抗振动能力	(5~8)Hz; Amplitude/振幅±7.5mm; Tri-axial/三轴 (8~500)Hz; a/加速度=2g; Tri-axial/三轴		5~8Hz: 位移±17mm 8~100Hz:加速度4g 100~500Hz:加速度2g	
Shock 抗冲击能力	Half-sine Wave/半正弦波; a$_{peak}$/峰值加速度=50g; Tri-axial/三轴		50g,11ms,half-sine,complete shock tests from three directions, with a total of 18 shocks per test. 50g,11ms, 半正弦,完成从三个方向的冲击测试，每个测试共有18个冲击IEC60068-2-27	
Case Dimensions 外形尺寸(mm)	444*284*400(L*W*H)		315*192*230(L*W*H)	
Weight/重量(kg)	18		5.3	

HLS300+HSM300+HMP300+(HEP300)Power Management Solution

HLS300+HSM300+HMP300+(HEP300)功率管理解决方案
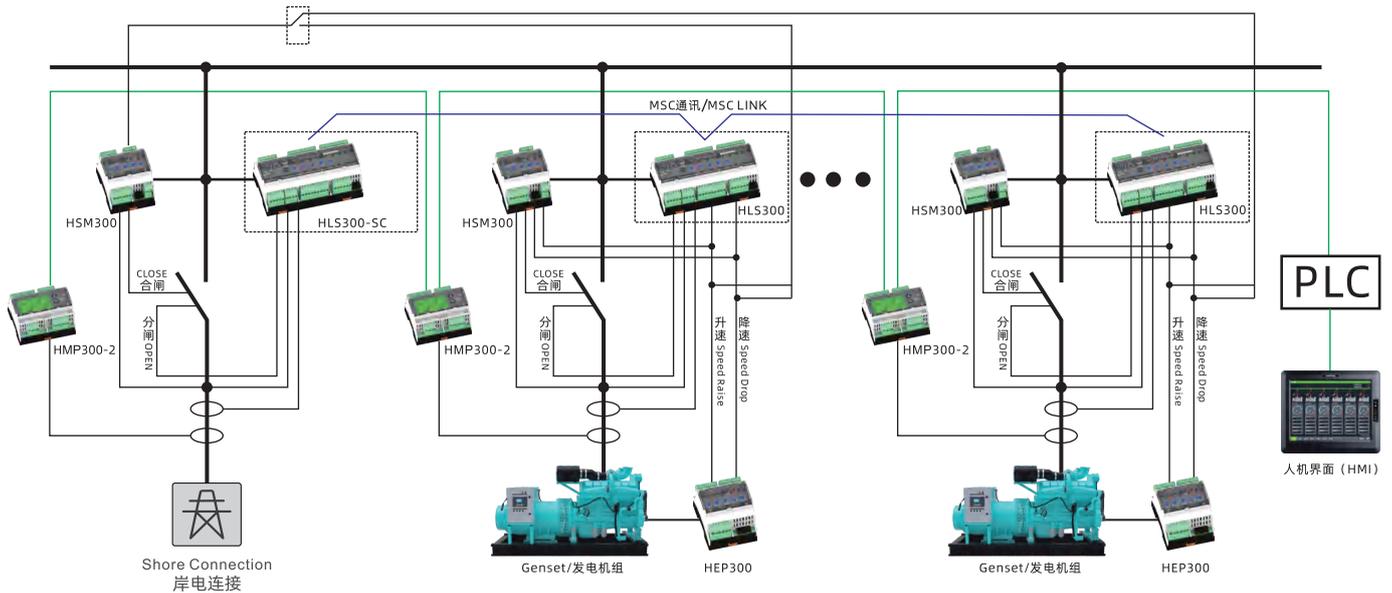
- The system realizes the synchronization between the generators through the HSM300 synchronization module , and uses the HLS300 power sharing module to complete the load distribution, reverse power protection and automatic start/stop output functions between the generators;

- Convert the relay output signal of the PI step controller to the control voltage signal required by the governor/AVR via the electronic potentiometer (HEP 300);

- PLC control module of user can obtain rich electrical parameter information (voltage, current, power, harmonics and over-limit alarm) through the Modbus RTU interface provided on the HMP300 power comprehensive protection module, with the human-machine interface, users can quickly build a high-quality power management system that can support up to 16 diesel generator sets.

- 该系统通过HSM300同步模块实现发电机间的同步，利用HLS300功率均分模块完成发电机间的负荷分配、逆功率保护及自动起/停等输出功能；

- 通过电子电位器（HEP300）将PI步进控制器的继电器输出信号转换成调速器/AVR所需的控制电压信号；

- 用户的PLC控制模块可通过HMP300电量综合保护模块上配备的Modbus RTU接口获取丰富的电参量信息（电压、电流、功率、谐波及越限报警），配合人机界面用户可快速搭建起一套可支持多达16台柴油发电机组组网的高质量功率管理系统。

HLS300A

HLS300A Power Share Module
功率均分模块
Active and reactive sharing function
具备有功、无功均分功能

Case Dimensions
外形尺寸(mm):161.6*92.94*60.7

HMP300/300-HV

Power Integrated Protection Module
电量综合保护模块
Power integrated protection module with CANBUS interface
电量综合保护模块，具有CANBUS接口。
Differential protection function
具备差动保护功能

Case Dimensions
外形尺寸(mm):107.6*93*60.7

HLS300

HLS300 Power Share Module
功率均分模块
Active sharing function
具备有功均分功能

Case Dimensions
外形尺寸(mm):161.6*89.7*60.7

HMT300

Multifunctional Transmitter
多功能变送器
High Sampling Accuracy (class 0.5)
高采样精度（0.5级）
1-way Analog Output
1路模拟量输出
RS485接口/RS485 Interface

Case Dimensions
外形尺寸(mm):107.6*89.7*60.7

HSM300

HSM300 Sync Control Module
同步模块

Case Dimensions
外形尺寸(mm):71.6*89.7*60.7

HVD300

HVD300 Voltage Detection Relay
Multifunctional Protection Module
电压检测多功能保护装置

Case Dimensions
外形尺寸(mm):89.7*71.6*60.7

HEP300

HEP300 Electronic Potentiometer
电子电位器

Case Dimensions
外形尺寸(mm):89.7*71.6*60.7

HFT300

Frequency Detection Relay Multifunctional
Protection Module
频率检测继电器多功能保护装置

Case Dimensions
外形尺寸(mm):89.7*71.6*60.7

HMP300-2

Power Integrated Protection Module
电量综合保护模块
Power integrated protection module with RS485 interface
电量综合保护模块，具有RS485接口。
4-way programmable output, 2-way programmable input
4路可编程输出，2路可编程输入口

Case Dimensions
外形尺寸(mm):107.6*89.7*60.7

HOC300

HOC300 Over Current Protection Relay
Multifunctional Protection Module
过流保护继电器多功能保护装置

Case Dimensions
外形尺寸(mm):89.7*71.6*60.7

HPD300-S01

Multifunctional Comprehensive Protection Module
多功能综合保护装置
1-way overcurrent pre-alarm output
1路过流预报警输出
1-way open output (undervoltage, overcurrent long/short delay)
1路分闸输出(欠压、过流长延时、过流短延时)

Case Dimensions
外形尺寸(mm):89.7*71.6*60.7

HPD300

HPD300 Reverse Power Protection Relay
Multifunctional Protection Module
逆功率保护继电器多功能保护装置

Case Dimensions
外形尺寸(mm):89.7*71.6*60.7

PDC2420
DC/DC Isolated Power
DC/DC隔离电源

Model/型号	PDC2420
Rated Input Voltage 额定输入电压	DC 24V
Max Input Voltage Range 最大输入电压范围	DC (18～72)V
Max Input Power 最大输入功率	605W
Max Input Current 最大输入电流	34A
Max Efficiency 最大效率	92%
Output Voltage Range 输出电压调整范围	DC (22～28)V
Rated Output Voltage 额定输出电压	DC 24V
Rated Output Current 额定输出电流	20A
Rated Output Power 额定输出功率	480W
Input Undervolt Protection 输入欠压	欠压保护阈值DC17.5V
Output Overvolt Protection 输出过压	关闭输出电压，自动重启后恢复
Working Temp 工作温度	(-30～+60)°C
Working Humidity 工作湿度	20%RH~93%RH(无凝露)
Weight 净重（kg）	1.51kg
Case Dimensions 外形尺寸(mm)	218.9mm×155mm×69mm (L*W*H)
Panel Cutout 安装尺寸(mm)	143mm×130mm (L*W)

MPC300

Marine Auxiliary Pump Distributed Controller
船舶辅机泵分布式控制器

It collects data from MDIO16/MDIO32 modules, and outputs corresponding control actions to protect the equipment upon detecting abnormal data.

通过对MDIO16/MDIO32进行数据采集并且在这些数据出现异常情况时可输出相应动作，从而对设备进行保护。

Case Dimensions
外形尺寸(mm): 107.6*93*60.7

MDIO16/32

Digital Input/Output Module
开关量输入输出模块

An expansion module providing 8-way digital inputs and 8-way digital outputs.
扩展8路开关量输入、8路开关量输出的模块。

Case Dimensions
外形尺寸(mm): 123.4*93.3*25

BAC2408
Battery Charger
蓄电池充电器

BAC2410D
Battery Charger
蓄电池充电器

BACM2420A
Battery Charger
蓄电池充电器

Model/型号	BAC2408	BAC2410D	BACM2420A
Battery Voltage 电池电压	24V	24V	12V/24V
Charging Current 充电电流	8A±2%	10A±2%	20A±2%
Max Input Current 最大输入电流	3A	4A	8.2A/4.2A
Rated Input Voltage 额定输入电压范围	AC(100～240)V		AC(100～277)V
Max.Input Voltage Range 最大输入电压范围	AC(90～280)V		AC(90～305)V
AC Frequency 交流频率	50Hz/60Hz		
Max Input Power 最大输入功率	230W	340W	373W/736W
Max. Output Power 最大输出功率	200W	290W	320W/640W
Communication Function 通信功能			RS485
Weight 净重（kg）	0.9kg	1.17kg	2.2kg
Case Dimensions 外形尺寸(mm)	145.5mm×131mm×55mm (L*W*H)	205.5mm×131mm×55mm (L*W*H)	265mm×156mm×68mm (L*W*H)

BCW20
Battery Charger Box
蓄电池充电箱

BACM2440
Battery Charger
蓄电池充电器

SP2440
Isolated Switching Power
隔离开关电源

Model/型号	BCW20	BACM2440	SP2440
Battery Voltage 电池电压	24V/12V		
Max.Charging Current 充电电流	20A±2%	40A±2%	
Max Input Current 最大输入电流	7A/3.5A	5A/3A	5A
Rated Input Voltage 额定输入电压范围	AC(100～277)V	AC380V	
Max.Input Voltage Range 最大输入电压范围	AC(90～305)V	AC(300-500)V	
AC Frequency 交流频率	50Hz/60Hz		
Max Input Power 最大输入功率	680W/340W	1450W/750W	1450W
Max. Output Power 最大输出功率	580W/290W	1280W/640W	1280W
Weight 净重（kg）	6.2kg	3kg	
Case Dimensions 外形尺寸(mm)	330mm×120mm×270mm (L*W*H)	150mm×139mm×158mm (L*W*H)	

New Energy Products 新能源产品

BMS主控模块
BMS Master Control Module

BMS从控模块
BMS Slave Control Module

微网控制器
Micro-Grid Controller

混合能源管理系统
Hybrid Energy Management System

Genset Controllers 发电机组控制器

单机自起动发电机组控制器
Self Starting Genset Controller

AMF发电机组控制器
AMF Genset Controller

单机自启动发电机组控制器
Single Auto-start Genset Controller

增强型发电机组控制器
Enhanced Genset Controller

ATS Controllers 智能切换控制器

双电源自动切换控制器
ATS controller

经济型双电源控制器
Dual Power ATS Controlle(Economical type)

低温型双电源控制器
Low-temperature Dual Power ATS Controller

双电源自动切换控制器
Dual Power ATS Controller

储能变流器
Power Conversion System

风冷电池模块
Air-Cooled Battery Module

液冷电池模块
Liquid-Cooled Battery Module

液冷一体储能柜
Liquid-cooled ESS Cabinet

分体式发电机组并联控制器
Split Type Genset Parallel Controller

低温分体式发电机组控制器
Low-temperature Split Genset Controller

冗余并联发电机组控制器
Redundant Parallel Genset Controller

发电机组远程监控控制器
Remote Monitoring Controller

双电源同步切换控制器
Dual Power Synchronous ATS Controller

双电源母联自动切换控制器
Dual Power Bus Tie Controller

三电源母联自动切换控制器
Three Power Bus Tie Controller

中压双电源自动切换控制器
Medium Voltage ATS Controller

Construction Machinery Controllers 工程机械控制器

工程机械控制器
Construction Machinery Engine Controller

发动机CAN监控模块
Engine CAN Monitoring Module

发动机监控模块
Engine Monitoring Module

柴驱泵组控制器
Diesel Drive Pump Unit Controller

Chargers/Heaters 充电器/加热器

数显型蓄电池充电器
Digital Display Battery Charger

智能型蓄电池充电器
Smart Battery Charger

蓄电池充电器
Battery Charger

蓄电池充电箱
Battery Charger Box

Others 其他

增强型数字电压调节器
Enhanced Digital Voltage
Regulator

标准型数字电压调节器
Standard Digital Voltage
Regulator

标准型数字电压调节器
Standard Digital Voltage
Regulator

基础型数字电压调节器
Basic Digital Voltage
Regulator

柴驱空压机控制器
Diesel Air Compressor Controller

消防水泵机组控制器
Diesel Engine Fire Pump Controller

柴驱消防泵控制器(显示模块)
Diesel Air Fire Pump Controller
(Display Module)

柴驱消防泵控制器(主控模块)
Diesel Air Fire Pump Controller
(Master Control Module)

液体加热器
Hydronic Heater

强制循环水加热器
Forced Circulation Heater

强制循环水加热器
Forced Circulation Heater

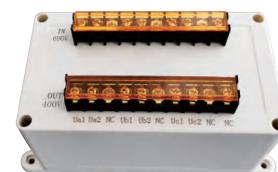强制循环水加热器
Forced Circulation Heater

双电源自动转换开关
Dual Power Automatic
Transfer Switch

4G云监控通信模块
4G Cloud Monitoring
Communication Module

电量综合保护模块
Power Integrated
Protection Module

变压器模块
Transformer Module

SmartGen众智

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