



ELECTRIC EQUIPMENT

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The Main Switchboard

PGH series marine switchboard applies to AC and DC systems under three-phase AC720V (50HZ/60H) and DC220V, used to control, monitor, protect the generators and power distribution.

Marine switchboard varies by ship. It can be designed and produced according to customer's technical requirements. To meet different requirements of customers, PMS has three mode, i.e. manual, semi-automatic and automatic.

It can be declared for CCS, ABS, GL, BV, KR, RINA, DNV and other marine products inspection certification.



Automatic Station Management System

1. When electric network is power off, it can automatically start the diesel generator in 40 seconds and automatically switch on for power supply.
2. When diesel generators supplies, if the electric network load exceeds 90% of unit capacity, it will automatically start a stand by diesel generator, and automatically adjust and switch on, so as to achieve Dual parallel generating power.
3. When electric network loads more than 95% of total capacity, it will unload non-essential load automatically after 1 minute delay (time adjustable).
4. In Dual Parallel run of diesel generators, if electric network loads less than 40% of power plant capacity, the latter parallel load units automatically transfer and splitting, off from the electric network.
5. Heavy load inquiry function: Inquiry is necessary before starting large capacity heavy load, calculated by the automatic station. If the power plant capacity allows, then starting command issues; if the power plant capacity is low and as isolated operating, diesel generator will be started automatically. Large-capacity load is only allowed to start after starting command is issued by the auto-power station, so as to ensure that power will not overload trip due to starting large power generator.
6. Automatically self-check function
7. Extend alarm function as required by AUTO-0 specification.
8. Important load start in turn.
9. With a standard RS485 or RS232 external control interface.

The management module adopts SELCO, SIGMA and other famous brands, so as to achieve automatic frequency modulation, ensuring continuity of the switchboard.

Cab Concentrated Console

Our WHC series is based on guideline of "centralized control, easy operation, module combination, reasonable layout, beautiful and practical, ergonomic requirements", meeting requirements of "steel ship Classification and Construction" (military vessels standard). Designed with international popular styles, novel, and beautiful, reasonable structure, easy maintenance, reliable, it is advanced ships cab control equipment, widely used in large, medium and small vessels control systems.



Cab Concentrated Console

The structure of console is drip proof, the overall structure is protective type, split combinations (common), transportation convenient, panels in aluminum or copper, matte paint, elegant in appearance. And it has der ejector for removing cover and maintaining. Made from cold-rolled steel sheet, its housing has function oiling, ventilation, against rodent and earthquake proof. According to different control characteristics and remints, it can provide a variety of structural forms and production programs. For Instruments and equipment, it provides the optimal arrangement of man-machine interface to enable operators to collect all data and corresponding treatment more conveniently.



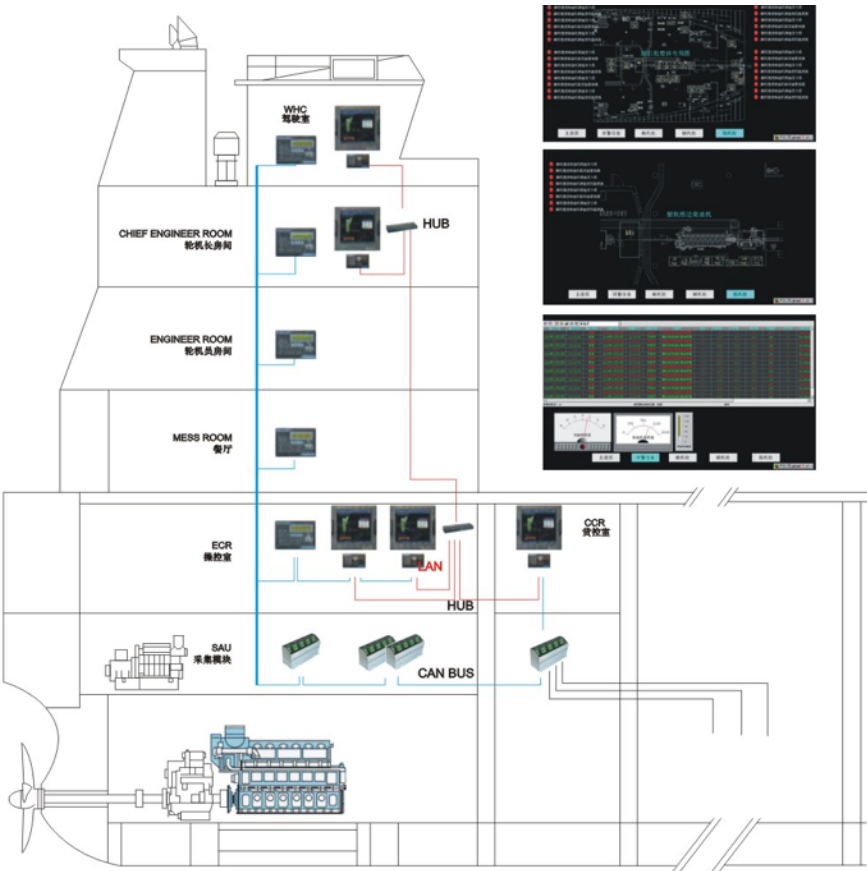
Cabin Centralized Control Console

Centralized console can realize centralized monitoring, alarming monitoring and security protecting the operation process of major equipment, meanwhile, recording, analyzing and processing various data.



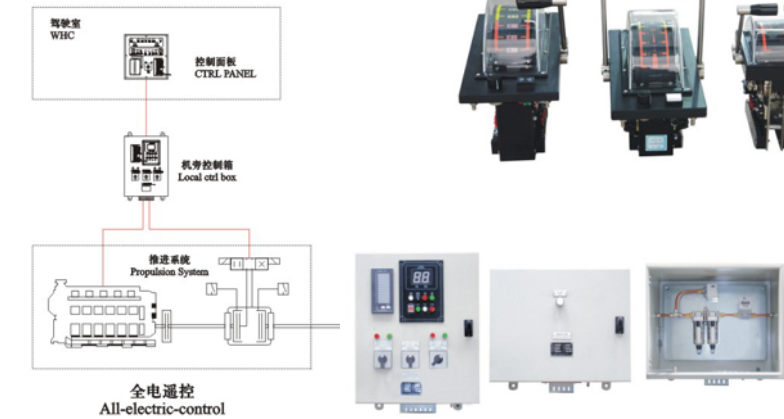
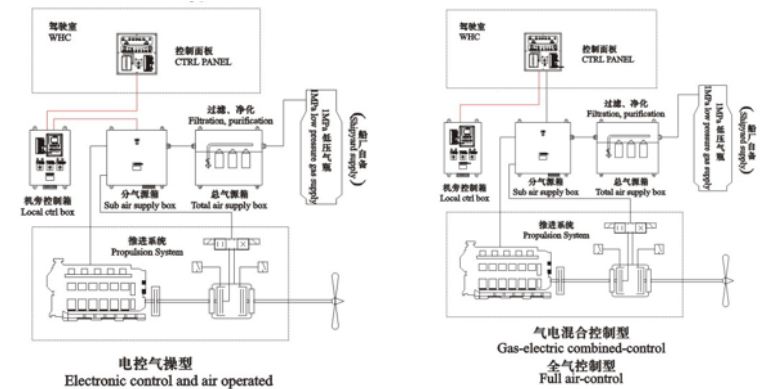
System Features:

- 1. Equipped with a sound power telephone, automatic telephone, engineers calling system, radio remote control units and other communications equipment to facilitate communication and contact within the vessel.
- 2. Monitoring and displaying the status of generator work status; sound and light alarming and emergent treatment, so as to protect the generator.
- 3. With matching remote control device, it can realize cabin centralized control of the speed and gearbox movement.
- 4. With PC-PLC, or alarm relay, it can monitor, measure and alarm parameters such as pressure, temperature, liquid level of the host, auxiliaries and other important equipment.
- 5. The system has function such as automatic, real-time, setting, failure printing, etc. It can store records equipment running data of 35 calendar days (800 hours), helping managers check and analyze the operational status of equipment at any time.



Remote Control

According to the main control characteristics, remote control system can be divided into below types:



◇ The operation principle diagram of mechanical flexible shaft remote control

Main technical feature:

1. The reversing stepless speed regulation of the single handle
2. Main engine, gearbox failure alarm
3. Main engine speed indicator
4. Emergency telegraph
5. Remote control Crash-stop
6. Power source: 24V
7. Suitable for main power: 105 series, 135 series, 170 series, Steyr series, Comings series, Mannheim series and other types' diesel engine. The wheel house and the engine room connection distance less than 30m ships.
8. Control target's characteristic
9. Main engine: The speed adjusts way is hydraulic pressure governor. Gearbox: The reversing way is manual reversing type or electromagnetic valve reversing type
10. The main control type
Import manipulator and flexible shaft classification. Such as U.S.A MORSE Company, MT-3, SL-3, NB, JAPAN TSK. etc.
Domestic manipulator and flexible shaft classification. Such as the single function of the single handle, one pair of functions manipulator of single handle.

◇ The operation principle diagram of electric flexible shaft remote control

Main technical feature:

1. Main engine set electric flexible shaft remote device
2. Electric control remote control operator head (import)
3. Flexible shaft (Import)
4. Stepless speed adjust
5. The single handle speed adjust reversing
6. Remote control Crash-stop
7. Remote control and handle control changing
8. Power source: 24V
9. Main engine and gearbox failure alarm
10. Speed, power source meter display
11. Emergency telegraph
12. Suitable for main power: 105 series, 135 series, 170 series, Steyr series, Comings series, Mannheim series and other types' diesel engine. The wheel house and the engine room connection distance is 30m-90m ships.
13. Control target's characteristic
14. Main engine: The speed adjusts way is hydraulic pressure governor.
15. Gearbox: The reversing way is manual reversing type or electromagnetic valve reversing type
16. The main control type
Import manipulator. Such as U.S.A MORSE Company KE-4, KE-5, KE-6 types, U.S.A MATHERS company's products, U.S.A TWINDISC Company's products, etc.
The products that domestic and making by oneself.

Navigational Signal Light Unit

NLC series of navigation lights controller is mainly used for surveillance and control of navigation lights in sailing, usually embedded installed in the bridge. With micro switch control panel, backlit text display, compact structure, easy installation and operation, it is widely used in various ships. Built-in RS485 standard serial interface is compliant with international standards (IEC61162, etc.). Navigation light controllers meet the latest inspect standards.



◆ Features:

- 1. Pane is designed according to the actual lights layout, so the lights working condition is easy to see and understand.
- 2. When the navigation light alarm failure, it automatically switch to and light major-minor navigation lights.
- 3. Adopting two power supply design, fault automatically switch..
- 4. Built-in RS485 standard serial interface, facilitating communication management
- 5. Signal sent via VDR to RS485 are:
 - 6. Off or On for all navigation light control switch
 - 7. Work or stop of light bulb
 - 8. Supply or loss of main power
- 9. Signals sent via RS485 to other external devices are:
 - 10. accepting external mute command: CJYHDDH, SY
 - 11. Accepting external request command: CJYHDDH, ST
 - 12. Off or On for all All navigation light control switch
 - 13. Work or stop of light bulb
 - 14. Supply or loss of main power
- 15. The overall structure is dust-proof, anti-jamming and anti-corrosion.



Marine Frequency Control

With main components of imported high quality frequency transducer, contactors, circuit breakers, leading in reactors, filters, PLC programmable controller or industrial personal computer and other equipment, design and manufacture of three-phase AC motor starting, speed regulating , protection, control and monitoring systems. Marine inverter control system combines the most advanced technology and control functions, it can meet the application requirements of most of today's Marine Electric Drive, such as: lifting, transportation, lifting, ventilation, air conditioning, pumping, compression machinery, special machinery and so on, especially suitable for application systems with high requirements for the motor speed regulating, steady speed, torque adjustment, constant torque, constant tension, etc. The control mode of the Inverter is pulse-width modulation, so as to drive the motor. The pulse-width modulation provides adjustable current to the stator, so as to achieve excellent speed control results. At this time, the motor can be regarded as a speed source, whose speed is only decided by the input frequency of the stator, so ad to realize acceleration and deceleration speed adjustment. It has a very wide speed range and can compensate the resistance slow down. Depending on the application requirements, it can be equipped with PLC programmable controller or IPC. PLC adopts free communications with RS485 interface, so as to realize intelligent digital control of inverters. Inverter gains excellent control characteristics from space vector estimation and optimized inverter trigger pulse mode for decreasing motor loss and switch loss. It has powerful computing features and rapid response capability., good dynamic performance, high power factor, low harmonic content and good speed governing performance.



Marine Frequency Control System

- ◇ Feature:
- ◆ available of English, French, German, Spanish and other languages to achieve human-machine dialogue;
 - ◆ strong communication skills and computer input interface for intelligent control systems;
 - ◆ Super terminal programming ability, can create a number of additional features;
 - ◆ high efficiency, full load up to 98% rated;
 - ◆ power factor in the speed control region up to 0.95;
 - ◆ improve the grid power factor;
 - ◆ easy adjusting motor speed, and can achieve constant speed control;
 - ◆ can be in constant voltage or constant power transmission control;
 - ◆ can be in constant torque, constant tension transmission control;
 - ◆ Motor soft-start, without rush current;
 - ◆ optional direction of motor rotation;
 - ◆ High overload torque start, starting torque up to 180% rated;
 - ◆ instantaneous torque is 110% of the motor rated torque, duration 60 seconds;
 - ◆ Low noise motor operation;
 - ◆ compact and silent frequency counters
 - ◆ allows two motors with different rated frequency use the same inverter to start in tum.



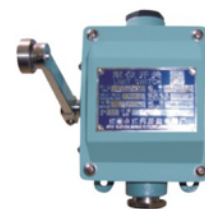
◇ Transducer's Brand Partner



Other Products



锚铰机主令控制箱
Anchor winch control box
and master controller



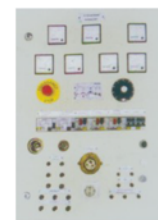
限位开关Lx918(防护等级IP56)
Limit switch Lx918
(Protective class IP56)



报警电笛(防护等级IP56)
Alarm hailer
(Protective class IP56)



磁力起动器
Magnetic Starter



电工试验板
Electric test board



动力/照明配电箱
Drive/lighting electric distribution box



岸电箱
Shore power connection box



水密门控制箱
Watertight door control box



铝合金水密按钮盒
(防护等级IP56)
Aluminum alloy watertight button box
(Protective class IP56)

Cases



Project	132M LOA TRANSHIPPER No.1-3
Ship Owner	Loreto Maritime Pte Ltd
Shipyard	Nan Tong Tong Mao Shipbuilding
Diesel Generator	1200kWx4+200kWx1
Classification society	DNV



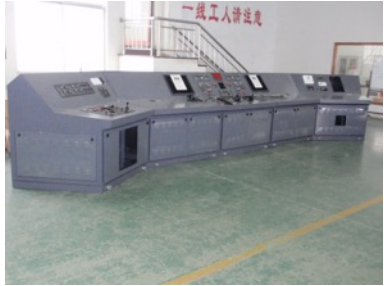
Project	Salvage Vessel (ABB)
Ship Owner	Up Offshore Ltd. (Argentina)
Shipyard	Wison (Nantong)Heavy Industry
Diesel Generator	2000kW×2
Classification society	DNV



Project	92M SELF UNLOADING BARGE(ABB)
Ship Owner	VM SALGOACAR & BRO PVT LTD
Shipyard	Nan Tong Tong Mao Shipbuilding
Diesel Generator	770kWx3
Classification society	ABS/IRS



65M SAFETY STANDBY VESSEL WHC



78M (PSV) WHC



Project	VS457 PSV (ABB)
Ship Owner	Sino Noble Holding Pte Ltd
Shipyard	JIANGNAN SHIPYARD
Diesel Generator	900kWx3
Classification society	ABS



2000T CRANE SHIP WHC



Train Ferry WHC

Cases



4200T CRANE SHIP (ECC)



69.9M (PSV) WHC



Frequency Conversion Ctrl System



4200T CRANE SHIP (WHC)



66M WHC (PSV)