

2017

Main Engine Remote Control System





Company Profile

Nanjing Southeast Industrial Equipment Corporation is a public company on the list of National Equities Exchange and Quotations (NEEQ). The abbreviation is Southeast Share and stock code is 832124.

Established in 2003, SECORP is a new high-tech enterprise and double software enterprise. SECORP has been committed to the development and applications of marine ancillary products. At present, the company products are mainly divided into three categories: 1. the electrical ancillary products, such as main engine remote control, bridge console and switch panel, etc. 2. the ancillary products for marine engine, such as oil supply unit and marine growth preventer etc. 3. the ancillary products for navais, such as wiper & clear view screen, foghorn and electric horn. We provide products and service for many well-known enterprises and brands, such as Shanghai Waigaoqiao Free Trade Zone Group Co. Ltd., CSSC Chengxi Shipyard Co. Ltd., Yangzijiang Shipbuilding, COSCO Shipyard, China Merchants Heavy Industry Co. Ltd., and Shanghai Shipyard; MAN, MTU, S.E.M.T, and DAIHATSU.

We obtained ISO9000:2008 certification from China Classification Society, BV Factory Approval Certificate, GL Recognition Certificate for Welding Workshop Process, CCS, DNV-GL, LR, BV, ABS, NK and other main classification society certificates of the world.

SECORP adhere to the enterprise spirit of “Keep it simple, Strive for perfection” and the quality policy of “innovation in manufacture, customer satisfaction” . Realize enterprise vision of “Create our better life with my hard work” .

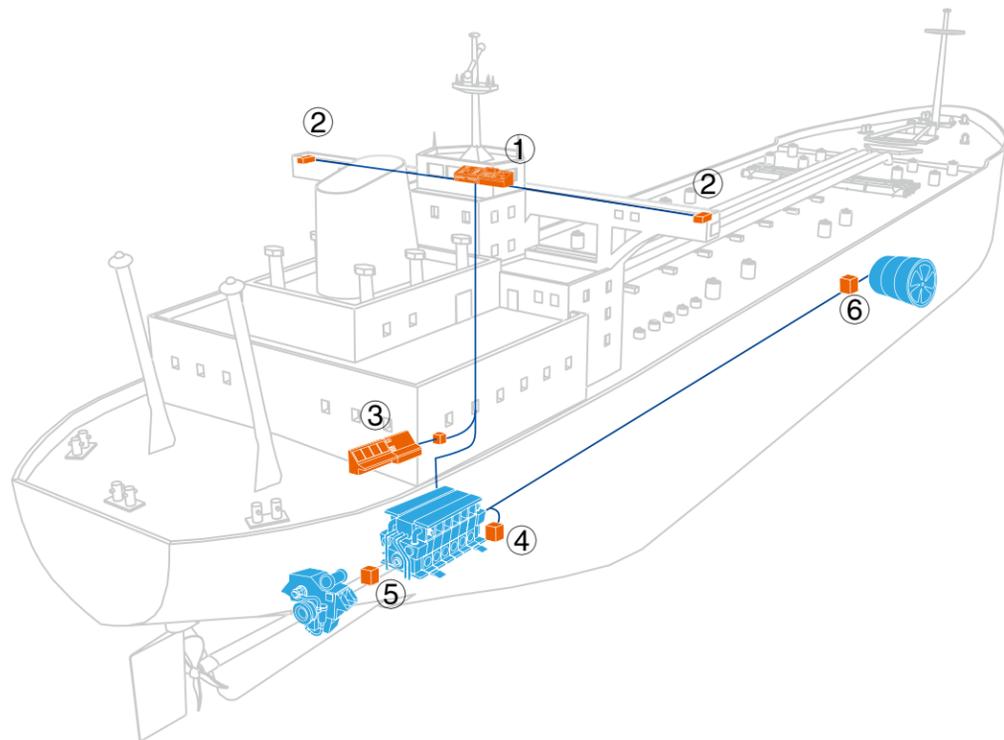


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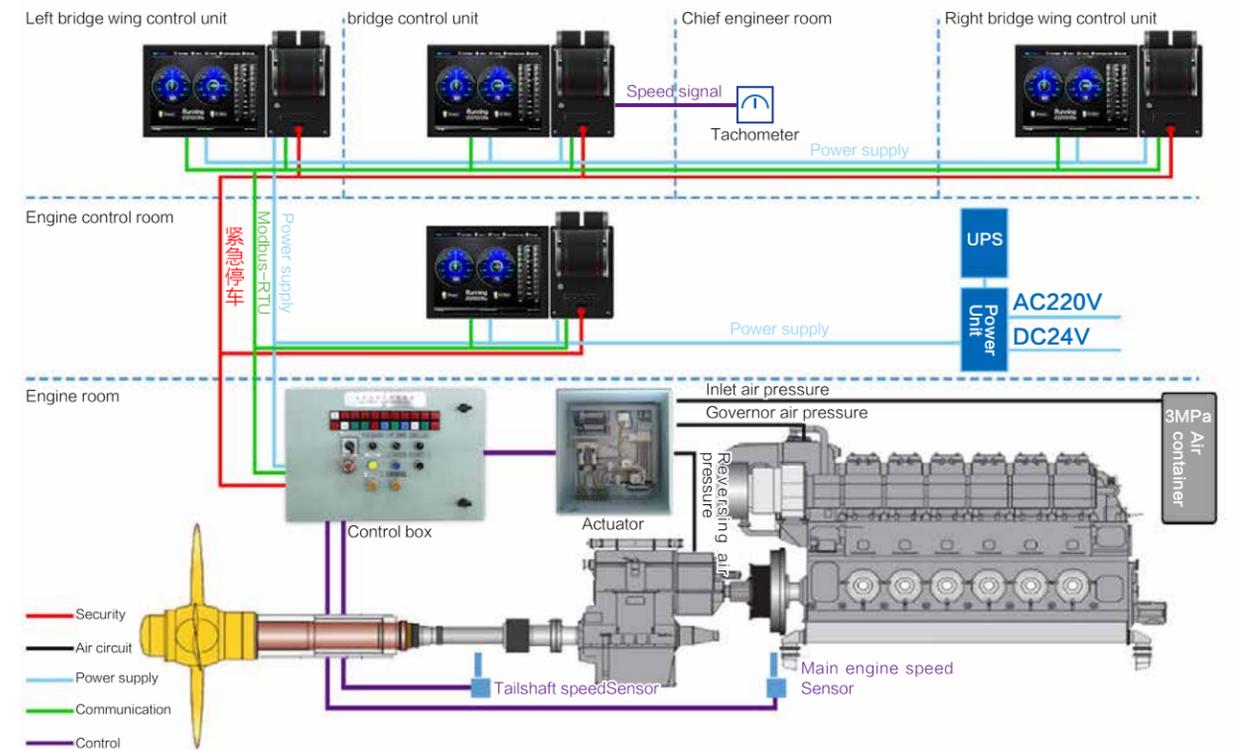
Brief Introduction to the Propulsion Control System

Intelligent lever handle	Easy for operation	Following intelligently, Zero misoperation
Module design	Flexible installation	Support 32 operation station at most
Industrial bus	Save time and effort	Save the cost for cables more than 85%
Global services	Ease to use	Commissioned and service for more than 15 countries
Touch screen technology	Operation simple	Easy for use, Zero barrier for use



Location No.	Installation Position	Composition	Type
1	Wheel house	Lever system	DNYK-T1
2	Bridge wings	Lever system	DNYK-T1
3	Engine control room	Lever system Power unit	DNYK-T1 DNYK-P
4	Control box	Control box pneumatic/soft shaft/electricactuators Speed measuring unit	DNYK-L DNYK-AI/SI/EI DNYK-MS
5	Tail shaft	Speed measuring unit	DNYK-SS
6	Bow thruster room	Control box pneumatic/soft shaft/electricactuators	DNYK-L DNYK-AI/SI/EI

System Layout Drawing

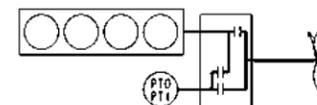


※ 4-stroke diesel engine with fixed pitch propeller FPP

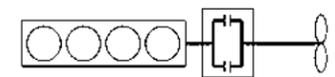
Applicable scope

The system is applicable for 2- stroke and 4- stroke diesel engines, connected with controllable pitch propeller or fixed pitch propeller, and can be widely used in diesel engines powered, hybrid or diesel electric power propulsion plant.

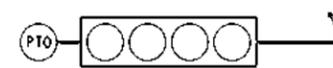
4-stroke diesel engine with controllable pitch propeller CPP



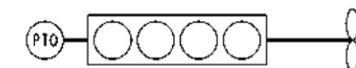
4-stroke diesel engine with fixed pitch propeller FPP



2-stroke non-reversible diesel engine with controllable pitch propeller CPP



2-stroke reversible diesel engine with fixed pitch propeller FPP



System Configuration

Lever System

Type: DNYK-T
Power supply: DC24V
Power consumption: 15W
Display: 7 inch HMI (resolution 1024 × 600)
Weight: 6.5Kg
Communication mode: RS485
Installation way: embedded
Installation dimension: 360X280X140 mm
Emergency stop: hardwired



Control Box



Type: DNYK-L
Power supply: DC24V
Power consumption: 100W
Weight: 12Kg
Communication mode: RS485
Installation way: wall mounted
Dimension: 600X400X250 mm

Power Supply Unit



Type: DNYK-P
Input power supply: AC220V/AC110V 50Hz/60Hz
 DC24V
 UPS(30 min)
Output power supply: 6 circuits, DC24V
Output power: 350W
Weight: 25Kg
Size of control box: 400 × 450 × 100 mm
UPS size: 145 × 400 × 220 mm

Actuator

Pneumatic actuator



Type: DNYK-AI
Power supply: DC24V
Power consumption: 15W
Air supply: 3MPa
Control signal: 4~20mA
Controlled air pressure: 0~0.5MPa
Reversing air pressure: 4 loop, 0.7Mpa
Weight: 30Kg
Installation way: wall mounted
Installation dimension: 360X280X140 mm

Soft shaft actuator



Type: DNYK-SI
Power supply: DC24V
Power consumption: 25W
Control signal: pulse
Stroke: customized
Weight: 6Kg
Installation way: wall mounted
Installation dimension: 360X280X140 mm

Electrical actuator



Type: DNYK-EI
Power supply: DC24V
Air supply: 3MPa

Velocity Direction Finding Unit

Speed sensor



Type: DNYK-MS
Power supply: DC5~24V
Control signal: Pulse
Frequency response: 0HZ ~ 30KHZ
Resolution modulus: Pitch ≥ 5mm
Mounting distance: 0.5 ~ 2mm
Measurement accuracy: ± 1 pulse
Output mode: NPN

Tachometer



Type: DNYK-SS
Control signal: 4~20mA
Outline dimension: 96 X 96 mm
Hole size: 91 X 91 mm
Measuring range: customized

Certificates

15 years of experiences in research & development and manufacturing of safety protection and remote control system. Provides products for well-known diesel engine enterprises and brands.



DAIHATSU



YANMAR

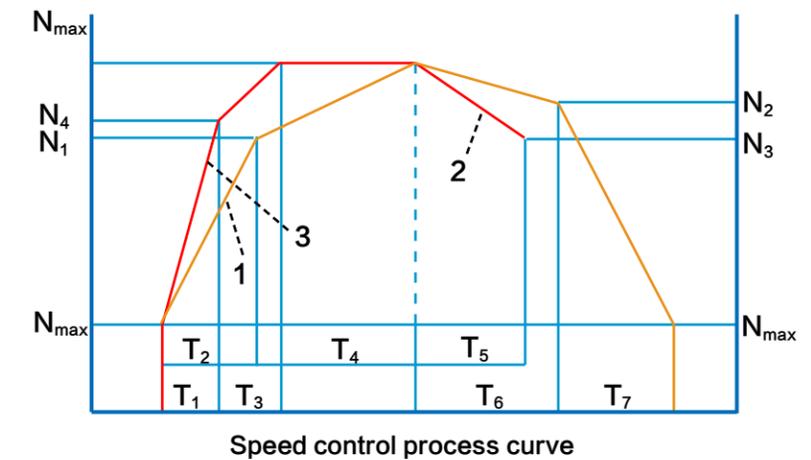


Related certificates

- The product has obtained the CCS (China Classification Society) type approval certificate, the certificate No. is No. NJ12T00114.
- Obtained the GL (Germanischer Lloyd) type approval certificate, the certificate No. is No. 46545-12HH.
- Obtained Environmental Test Report (test No. EM2012-038) and electromagnetic compatibility test report (test No. ER2012-038) from China Shipping Industry Electronic Equipment Environmental and Reliability Test Center.
- Obtained Quality Management System certificate (certificate no. is 00511Q21132R0S).



Control Strategy



DNYK type main engine remote control system is an integrated propulsion control system with control, alarm and security protection all in one.

With many years of joint development experience in cooperation with diesel engine plants, SECORP made a targeted optimization according to the technical parameters of different engines.

Control of acceleration and deceleration speed

When the main engine is accelerating or decelerating under a scope of "Full" (Maximum speed) speed, the system will control the acceleration and deceleration speed, the speed rate will be set at HMI.

Maximum speed manually controlled

The chief engineer maximum speed control

Minimum speed control

Minimum speed limit speed value corresponding to the lowest stable speed of host when rotational speed set point below this limit, propulsion system to the minimum speed governor to the algorithm procedures, ensure that the host can stable operation.

Automatically slow down control

When the main engine is failure and need to be slowed down, the remote control system will show the alarm for "cancelable slow down" and "noncancelable slow down" on the control panle according to the cause for slow down.A

Save fuel and reduce emissions

Optimize propulsion control program to meets the demand of economy operation

Operability

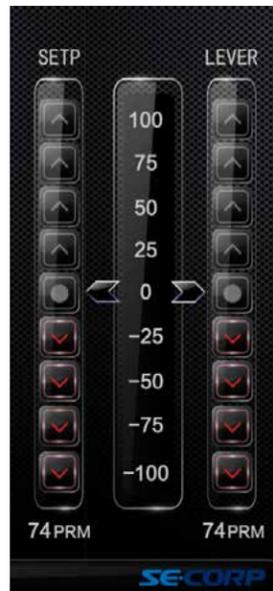
When the crew member push the lever at local operation station, the other levers at other operating station also will be run to the same position. The synchronizing function can greatly simplify the crew' s operation and improve the navigation safety and efficiency.



Current lever controlled



Driven lever



In addition to, the information display panel of the DNYK propulsion control system can observe the current position of the currently controlled lever and the driven lever to minimize the misoperation.

It also has the auxiliary telegraph function, when the lever is failure, it can contact the cabin by push a botton, to ensure the safety of navigation.

Human Interaction

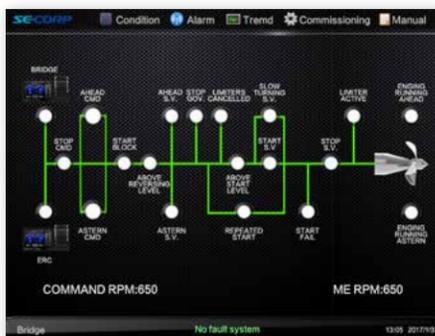


SECORP DNYK operating system uses a capacitive multi-point touch to upgrade the man-machine interaction experience, and finish all operations easily, the complex tasks can be finished by touching.

Economy

Design with bus make the whole ship can be connected with special PROFIBUS 2-core communication cable, which will save the cost of materials and construction time of shipyard.





Fault detection

- The system is equipped with expert diagnosis system. The crew can search the fault code to directly read the fault information and maintenance methods.



Maintenance manual

- The control unit has built-in product manuals and maintenance manuals for crew.



U盘

System upgrade

- It supports the USB upgrade function. The crew can use the U disk supplied by manufacturer to upgrade the program.



电池模块
直接插入，维护方便

Standby power supply

- It is equipped with special battery module; it can be stored for 200 days under a continuous power off.



We provided service for project of Shanxi Diesel Engine Heavy Industry Co., Ltd. in Antigua and Barbuda

We provided service for project of Consort in sigapole

We provided service for project of ZGPT Diesel Heavy Industry Co. Ltd. in Pakistan

We provided service for project of Xixiakou shipyard Co., Ltd. in Singapore

We provided service for project of LongShun Fishing Company in Taiwan.

We provided service for project of CNBM in Iraq.

We provided service for project of Zijin Mining Group Co., Ltd in Russia.

We provided service for project of BPOB-RPCL Proergen LTD., in bengal

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We will continue to provide high-quality service for our users all over the world.

Main Engine Remote Control

Some installation cases

SN	Q'ty	Vessel type	Hull number	Shipyard	Shipowner
1	1	Accommodation vessel	NB126	Tianjin Xinhe Shipbuilding Heavy Industry Co., Ltd.	South East Asia pipeline Company Limited
2	2	3200 m3 product oil tanker	YHSC1306/9-01Y	Nanjing Yonghua Shipbuilding Co., Ltd.	Thailand N.T.LMARINE Ltd.
3	2	3000 t product oil tanker	ESS130205/06	Nanjing Dongjia Shipbuilding Co., Ltd.	Thailand N.T.LMARINE Ltd.
4	4	558 Container vessel	BD5 ~ 8 #	Ningbo Boda Shipbuilding Co., Ltd.	Indonesia Meratus Line
5	1	Ocean fishing vessel	JLB1#	Penglai Zhongbai Jinglu Ship Industry Co., Ltd.	Taiwan Longshun Fishery Co., Ltd.
6	1	2300t oil tanker		Zhejiang into chau ship industry Co., LTD	
7	1	13000t chemical tanker	3 # ~ 4 #		Zhanjiang Mingriguang
8	2	Fujian Changxing 1 # 2#	CX3500POT-001/2	Fujian Changxing Shipbuilding Co., Ltd.	
9	4	Mawei	1 # ~ 4 #	Fujian Mawei Shipbuilding Ltd.	Fujian Mawei Shipbuilding Ltd.
10	2	1200 Passengers liner	WJZ059/060	Nanjing Wujiazui Shipbuilding Co. Ltd.	Nanjing Ferry Company
11	1	8500t oil tanker		Huanghua Shipyard	Brightoil
12	1	Ninghai tug 6001	Ninghai tug 6001	Qinhuangdao Shipyard	Jiangsu Fanzhou Shipping Co.,Ltd.
13	2	4000P tug	Chengxi 4000P tug	SIPG Fuxing Shipping Service Sanlin Shipyard	SIPG Fuxing Shipping Service
14	8	5000P tug	Sanlin 1#-8#	SIPG Fuxing Shipping Service Sanlin Shipyard	JP
15	1	Teaching remote control system			Chinese People's Liberation Army Zhenjiang Ships and Boats College
16	1	MaK bench test control system			CSSI Anqing Jier Engine Co.,Ltd.
17	1	DK bench test control system			Anqing CSSC Diesel Engine Co. Ltd.
18	1	400 Passengers liner	FY201632	Zhejiang Fangyuan Ship Industry Co., Ltd.	Beibu Gulf Tourism Co.,Ltd.
19	2	Journey to Fairyland 1# and 2# cruise ship	FY201630/1	Zhejiang Fangyuan Ship Industry Co., Ltd.	Beibu Gulf Tourism Co.,Ltd.
20	1	"Rainbow Dolphin No.1" Wind Farm Service Vessel	N1030	Nantong Rainbow Offshore & Engineering Equipments Co., Ltd.	Jiangsu Rainbow Heavy Industries Co.,Ltd.



Multifunctional Ship



Chemical Tanker



Passenger Ship



Ocean Fishing Vessel

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