

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Engine Safety, Control and Alarm System

with type designation(s)
ED212 Self Starting Panel for Generator

Issued to

Jiangsu Enda General Equipment Co., Ltd.
Nantong, China

is found to comply with
DNV GL rules for classification – Ships

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Location classes:

Temperature	B
Humidity	B
Vibration	B
EMC	A
Enclosure	B

This Certificate is valid until **2018-04-21**.

Issued at **Hamburg** on **2016-04-22**

DNV GL local station: **Nantong**

Approval Engineer: **Dariusz Lesniewski**

for **DNV GL**

Duy Nam Le
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Product description

Self Starting Control Panel for Generator "ED212", consists of:

List of main hardware components:	
Model	Name
ED212-001 / ED212-003	Alarm System main board
S7-200	Engine Safety System
ED212	Monitor
EDSD-3	Speed sensor
EDWD-44	Water temperature sensor
EDYLSQ-43	Water pressure transmitter
EDWD-44	Oil temperature sensor
EDYLSQ-46	Oil pressure transmitter

PLC S7-200 hardware is covered by DNV GL Type Approval Certificate(s)

List of software:		
Hardware name	Unit description	Relevant software version
ED212-001 / ED212-003	Alarm System	1.0
S7-200	Engine Safety System	1.0

The current software numbers and versions are listed in document:
"ED212 Self Starting Control Panel for Generator – Software change log"

Application/Limitation

1. The Type Approval covers hardware and software listed under Product description.
2. Approval is valid for diesel engine applications with cylinder power less than 130kW and output power less than 1000kW.
3. Not for diesel engines generators serving diesel electric propulsion.
4. Not for diesel engines serving propulsion plant.
5. Main and standby power supplies must be sourced from different supplies.

Approval Conditions

Product certificate

Each delivery of the application system **is to be certified** according to Pt.4 Ch.9 Sec.1. The certification test is to be performed at the manufacturer of the application system, preferably at the engine/system application maker integrating control, monitoring and safety system, before the system is shipped to the yard.

The following documentation of the actual application is to be submitted for approval in each case:

- Reference to this Type Approval Certificate
- System block diagram
- Power supply arrangement (may be part of the system block diagram)
- List of controlled and monitored points showing alarms and safety functions (including type, range and threshold)
- Test program for certification

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2015.
Function testing dated 2012-01-18.

Periodical assessment

Job Id: **262.1-011191-5**
Certificate No: **TAA00000EV**

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed at least every second year and/or at renewal of this certificate.

END OF CERTIFICATE