Certificate No:
TAA00002Z3

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Remote Control System Diesel Engine

with type designation(s)
BMS-2000IV

Issued to
Mitsui E&S Systems Research Inc.
Tamano, Okayama Pref., Japan

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

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

Location class:

For * and **, see page 2

Temperature	**B**
Humidity	**B**
Vibration	**A, B***
EMC	**A, B****
Enclosure	**A**

Issued at **Busan** on **2021-04-23**
This Certificate is valid until **2023-04-22**.
DNV local station: **Kobe**

Approval Engineer: **Eun Jin Lee**

for **DNV**

Andreas Kristoffersen
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description
BMS-2000IV Engine remote control system

System/component	Type	SW/Firmware version no.
Bridge control box(Push button type)	BCB4-B	RSW 1.00.000
Bridge control box(Handle type)	BCB4-H	RSW 1.00.000
Telegraph transmitter	TTH-3	-
RCPU Unit		RCPU 1.00.000
Order indicator	DOT-A	-
Dimmer panel for order indicator	DMP-DY	-
W/H Display	DSP-6	LCD6 1.00.000
Telegraph logger	MTL-2	-
C/R Control box(Dial type)	CCB4-D	RS3 1.00.000
C/R Control box(Handle type)	CCB4-H	RS3 1.00.000
C/R power unit	CRPW	-
C/R display	DSP-6	LCD6 1.00.000
MEPS Unit	MEPS5	MEPS 1.00.000 RDU(MEPS) 1.00.000
MERI Unit	MERI3	MERI 1.00.000
Pick-up box	RPM-2	-
Local operating panel	LOP-1	-

* : Vibration B for RPM-2, LOP-1
** : EMC B for BCB4-B/H, TTH3, RCPU3, DOT-A, DMP-DY, DSP-6, MTL-2

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

- Reference to this Type Approval Certificate
- Functional description
- System block diagram
- Power supply arrangement (may be part of the System block diagram)
- List of control and monitored points
- Test program for certification

The Type Approval covers (hardware and) software listed under Product description.

The current software numbers and versions are listed in document MSRAM-HM54035

When the type approved software is revised (affecting all future deliveries) DNV is to be informed by forwarding updated software version documentation. If the changes are judged to affect functionality for which rule requirements apply a new functional type test may be required and the certificate may have to be renewed to identify the new software version.

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 before the system is shipped to the yard. After the certification the clause for application software control will be put into force.

Application software control
All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV for evaluation and approval before implemented on board.

Type Approval documentation

Tests carried out
Applicable tests according to Class guideline DNVGL-CG-0339, December 2019.

Periodical assessment
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

A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE