

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Control and Monitoring System**with type designation(s)
JMC-SMS-22-K

Issued to

JRCS Co. Ltd.
Shimonoseki, Yamaguchi, Japanis 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	A
EMC	B
Enclosure	Required enclosure protection according to the rules to be provided upon installation on board.

Issued at **Høvik** on **2020-05-14**This Certificate is valid until **2025-05-13**.for **DNV GL**DNV GL local station: **Kobe**Approval Engineer: **Knut Omberg**

Jan Tore Grimsrud
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

JMC-SMS-22-K is an alarm, monitoring and control system intended for the following functions: MIMIC displays, Alarming, Alarm Groups, Monitoring and Logging, Trending, Level Indication, Manual Remote control of pumps, valves, fans, generator engines, breakers, Extension alarm system with Engineer Call.

The following hardware components are covered by this type approval:

- FSCU SMS-U950	Field station control unit
- OPS Unit SGD-640	Operator station
- OPS Unit (15" LCD) SGD-640-L1	LCD operator station
- OPS Unit (19" LCD) SGD-640-L2	LCD operator station
- SMS-U24C	Log printer, dot impact type
- SMS-U24E, SMS-U24G-4	Log printer, laser
- SMS-U20F	Alarm printer
- MP-262FJ-35IRB3F	Alarm printer
- SMS-U650A-10, -11, -12, -13	Field station
- RTB-DI, RTB-DO	Remote I/O boards
- EXT-200 (LED), EXT-210 (LCD)	Extension alarm panels
- SMS-U960	Hub unit
- SMS-U1300-O5	Extended OPS/GWS

Place of manufacture

JRCS Co. Ltd.
2155 Kawatana, Toyoura-cho, Shimonoseki, Yamaguchi, 759-6301 Japan

Approval conditions

This Type Approval covers hardware listed under Product description.

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
- User interface description
- Power supply arrangement (may be part of the System block diagram)
- List of control and monitored points
- Failure mode description, including network analysis
- Test program for application software at manufacturer

Product certificate

Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The Certification is to be performed at the manufacturer before the system is shipped to the yard. After certification the clause for software control will be put into force.

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 GL for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

Application limitation

FSCU to be installed in self-contained steel enclosure.

Hardware to be installed at least 5 meters away from magnetic compass.

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, December 2019.

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

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

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE