

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Control and Monitoring System

with type designation(s)
Evolution V5

Issued to

Rockson Automation GmbH
Kiel, Germany

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.

Temperature B

Humidity B

Vibration A

EMC B

Enclosure Required protection acc. to DNV-GL Rules shall be provided upon installation on board

This Certificate is valid until **2018-08-28**.

Issued at **Hamburg** on **2016-08-29**

DNV GL local station: **Hamburg**

for **DNV GL**

Approval Engineer: **Jens Dietrich**

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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

System consisting of:

PCs and VDUs (Third party HW not covered by this type approval)

CI-32	32 channel contact input Type M001 online selectable input types: NO and NC contact, frequency, pulse count, time period, flow meter, built-in earth fault monitor
ROX-12	12 channel relay output Type M002
MI-8	8 channel mixed input Type M003, built-in earth fault monitor, online selectable input types: 4-20mA, 0-20mA, 1-5mA, Pt100 thermocouple type K and J, T-802, proximity switch npn and pnp, contact with break and short monitoring
MO-8	8 channel analog current/voltage output Type M018
CFI-1	CAN to fieldbus interface Type M014
XAD	Extension alarm distribution Type M004
XAP	Extension alarm panel Type M005
BUZ	Buzzer with USB port Type M006
PSV	Process server Type M007
XAB	External buzzer (bedroom) Type M008
XAR	External alarm reset panel Type M011

Location class for all above components: see page 1.

Power supply : 24V DC

This type approval certificate covers hardware and basic software for Evolution V5 System.
System can vary from a simple alarm system to an integrated automation system, comprising:

- Alarming
- Lists of acknowledged and unacknowledged alarms
- Lists of disabled and suppressed alarms
- Alarm and event history with .pdf export
- Stand-by pump control
- Valve control
- Performance monitor for fuel oil consumption calculation
- Tank level measurement with volume and mass calculation and trim and list correction
- Mean value system with slowdown function (i.e. exhaust gas monitoring)
- Extension alarm system for unattended machinery spaces
- Manual engineers call function
- Trend recording and display
- Easy change of parameters and texts, Easy access to controls
- Adaptation to various display sizes, Touch screen capable
- Adaptable to all language character sets

Software versions:

S001 CI-32 Firmware 1.102
S002 MI-8 Firmware 1.105
S003 XAP Firmware 1.104
S004 BUZ Firmware 0.008
S008 CFI-1 Firmware 1.003
S009 MO-8 Firmware 1.003
S100 Process Server Software 5.139
S200 Extension Alarm System Server Software 5.139

S220 Extension Alarm System Client Software with SW Fire + Sysfail Alarming 5.042
S300 Visualization Client Software 5.042

Application/Limitation

When the type approved software is revised (affecting all future deliveries) DNV GL is to be informed by forwarding an updated software maintenance document. If the changes are judged to affect functionality for which rule requirements apply a new type test may be required.

With reference to DNV GL Rules for Classification of Ships Pt.4 Ch.9, the documentation listed below is required submitted for approval to DNV GL.

- Reference to this type approval certificate
- Reference to valid type approval certificates for other hardware/third party equipment, alternatively datasheets of similar information documenting compliance with environmental requirements in DNV GL Pt.4 Ch.9 Sec.5 [2]
- System block diagram/topology drawing
- Power supply arrangement (may be part of the system block diagram)
- Equipment list
- Functional description
- List of control and monitored points (I/O list, including data transferred on communication links)
- For deliveries of integrated systems a functional failure analysis documenting compliance with requirements for redundancy, segregation and effect of single failures in the system.
- Test program for product certification

For newbuilding projects, identical deliveries to sister vessels with the same DNV GL project ID are to be documented/submitted as one common transmittal.

Product certificate

Each delivery of the application system is to be certified according to DNV GL 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 following clause for application software control will be in force:

Clause for application software control

All changes in software are to be recorded. The records of all changes are to be forwarded to DNV GL for evaluation and approval. Major changes in the software are to be approved and possibly tested before being installed in the computer onboard.

Type Approval documentation

- Test according to GL Guidelines for the Performance of Type Approvals VI-7-2, edition 2012
- Functional tests based on 20110707.odt
- Functional tests XAP-X Abnahmereport

Marking of product

- Components are marked with product name and product number
- Basic software version and project related configuration is displayed in the system graphical user interface

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



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Certificate No: **TAA00000NK**

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 renewal of this certificate.

END OF CERTIFICATE