TYPE APPROVAL CERTIFICATE

This is to certify:

That the Control and Monitoring System

with type designation(s)
Marine Watch Series S

Issued to
Auto-Maskin AS
Skjetten, **Norway**

is found to comply with
DNV rules for classification – Ships
DNV rules for classification – High speed and light craft

Application :

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

Location classes:

Type	Temperature	Humidity	Vibration	EMC	Enclosure
Marine Watch S-ONE Alarm Panel	**D**	**B**	**B**	**B**	**IP56 (FRONT ONLY)**
Marine Watch S-ACE Annunciator Panel	**D**	**B**	**B**	**B**	**IP56**
Marine Watch S-C60 I/O Cabinet	**B**	**B**	**A**	**B/A***	**IP66/IP56****
Marine Watch S-C120 I/O Cabinet	**B**	**B**	**A**	**B/A***	**IP66/IP56****

* EMC class A for S-UPS option
** IP56 for S-DMO Door-mounted S-ONE option

Issued at **Høvik** on **2022-02-09**

for **DNV**

This Certificate is valid until **2024-02-08**.
DNV local station: **Oslo Maritime and CAP**

Approval Engineer: **Ruben Magnus Kolås**

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Jan Tore Grimsrud
Head of Section

Product description

Marine Watch Series S is a monitoring and alarm system with support for unattended engine room functionality. The system may also provide simple binary control functions. The system consists of S-ONE panels, which are the main panel plus subsequent sub-panels, and S-ACE panels, which are annunciator panels that can be set up to show both alarms and to support watch-call functionality. I/O Cabinet comes in 60 or 120 I/O versions. The S-BC Broadcasting unit is optional hardware for sending out SMS and e-mail regarding system status and alarms.

Hardware:

Part Number	Description	FW Number
1500073	S-ONE Alarm Panel	2.XX
1500075	S-ACE Annunciator Panel	2.XX
1500080	S-C60 I/O Cabinet	Phoenix AXL F BK ETH Bus Coupler DNV TAC:
1500081	S-C120 I/O Cabinet	TAA00000DF
1500082	12 V option for S-C60/C120	---
1500083	S-UPS Intelligent UPS Power	---
1500086	S-DMO Door-mounted S-ONE	---
1500090	S-AI8 Eight Analogue Inputs	---
1500087	S-DO8 Eight Digital Outputs	---
1500091	Loop monitored switch	---
1500084	Managed Ethernet switch	---
1500085	Unmanaged Ethernet switch	---
1500736	External buzzer	---
2500230	Marine Watch S-BC Broadcast SMS/email Alarming	---

The current firmware numbers and versions are listed in documents:

Document Name
Marine Watch S-ONE Software Revisions
Marine Watch S-ACE Software Revisions

Minor changes in firmware and consequent changes of firmware version numbers are covered by this Type Approval when such changes are performed in accordance with Firmware Version Labelling Strategy Doc. No. 3/1201-AMS007, i.e. not changing core functionality as it is described in type approval documentation. Such firmware changes to be registered in the above listed Software Revisions documents descriptions.

Application/Limitation

- No more than one (1) S-ONE panel is to be configured as a Main Panel in each system for DNV classed vessels. (Ref. DNV Ship (2021-07), Pt.4 Ch.9 Sec.3 [1.3.2] and [1.3.3])
- System is not to have control outputs to any systems or functions related to essential or important systems for DNV classed vessels. (Ref. DNV Ship (2021-07), Pt.4 Ch.9 Sec.1 Table 1 for definitions of "essential" and "important" systems)
- System does not meet the single point of failure requirements stated in DNV Ship (2021-07), Pt.4 Ch.9 Sec.2 [1.1.1] and Pt.4 Ch.9 Sec.4 [3.1.1]
- S-BC Broadcast equipment does not meet IEC 60945:2002 requirements. S-BC equipment cannot be installed in wheelhouse, bridge wings, control rooms where equipment for communication, signal processing, radio communication and navigation auxiliary equipment. Equipment shall be installed at least 5 meters away from receiving and/or transmitting antennas. Auto-Maskin must ensure the placement of antenna does not interfere with any other electronic equipment

Type Approval documentation

Marine Watch S-ACE Installation Drawing, Drw no. 20160212, 2016.02.12
Marine Watch I/O Cabinet 60, Drw no. 1500080, 2021.11.26
Marine Watch I/O Cabinet 120, Drw no. 1500081, 2021.11.23
Marine Watch S-ONE Acoustic Noise Compass Safety Testing, Drw no. 3-2919-HMP569, 2021.05.21
Marine Watch S-ONE Environmental-Testing-, Drw no. 1/2919-HMP569, 2019.10.22
Marine Watch S-ONE EMC-Testing-, Drw no. 2/29119-HMP569, 2019.12.09
Marine Watch S-ONE IP Testing, Drw no. 4-2919-HMP569, 2021.06.10
Marine Watch S-ACE Compass Safe Testing, Drw no. 4P05665E2, 2014.09.02
Marine Watch S-ACE IP Testing, Drw no. 5F007240, 2015.06.30
Marine Watch S-ACE EMC Testing, Drw no. 4P05665E1, 2014.11.26
Marine Watch S-ACE IP Testing, Drw no. 4F014603, 2014.10.28
Marine Watch S-ACE Environmental Testing, Drw no. 4P06267, 2014.09.26
Marine Watch S-ACE Sound Measurement Testing, Drw no. 4P06925, 2014.11.03
Marine Watch S Series – FAT, Drw no. FAT-1500073, 2021.11.22
Marine Watch S-ACE EMC 1-6 GHz Testing, Drw no. 445510, 2021.09.08
Marine Watch S Series – User Manual, Drw no. 1050161
Software Quality Assurance Plan, Drw no. 2/1201-AMS015, 2021.09.29
Firmware Version Labeling-Strategy, Drw no. 3/1201-AMS007, 2021.11.26
Marine Watch S-ONE – Software Revisions
Marine Watch S-ACE – Software Revisions
TA audit report 24.11.2021

Approval conditions

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

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

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

The current software numbers and versions are listed in documents "Marine Watch S-ONE Software Revisions" and "Marine Watch S-ACE Software Revisions" and the revisions for each software are listed in these two documents as well.

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.

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.

FAT "FAT test procedure Marine Watch S-Series" publication FAT-1500073, Rev. 1.1 dated 22nd November completed at Auto-Maskin in Skjetten, Norway.

For the bridge mounted components the 'Compass safe distance' were measured according to sections 11.1 and 11.2 of IEC 60945, 4th edition (2002).

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

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

END OF CERTIFICATE