



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. A-11399
This Certificate consists of 6 pages

This is to certify that the
Control and Monitoring System
with type designation(s)
G-DATA/ Mega-Guard/ Maxi-Guard

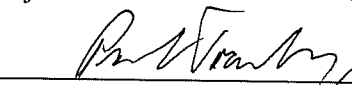
Manufactured by
PRAXIS Automation Technology B.V.
LEIDEN, Netherlands

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and
Det Norske Veritas' Offshore Standards

Application
Location classes:

Type	G-DATA/ Mega-Guard/ Maxi-Guard
Temperature	B
Humidity	B
Vibration	A
EMC	B
Enclosure	Required protection according to the Rules to be provided upon installation on board.

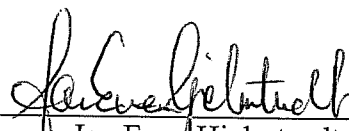
Place and date
Høvik, 2009-09-02
for DET NORSKE VERITAS AS


p.p. Odd Magne Nesvåg
Head of Section



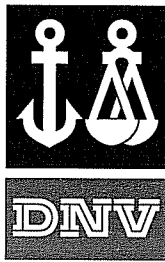
Local Office
DNV Rotterdam (Barendrecht)

This Certificate is valid until
2011-06-30


Jan Even Hjelmtvedt
Surveyor

Notice: 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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



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File No.: 867.60
Job ID.: 262.1-006983-1

Product description

G-DATA/ Mega-Guard/ Maxi-Guard Control and Monitoring System, consisting of:

1. OWS: Operator Work Station for control and graphic presentation of the following typical processes:

- Alarm, Control and Monitoring
- Electrical Power Management
- Main Engine Control
- Pump and Valve Control
- Duty Alarm System
- Patrol Alarm System
- PID Control
- Graphic presentation of ship's data
- Dynamic Positioning

OWS comprises the following components:

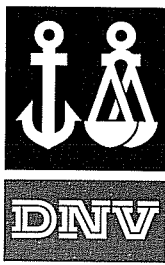
- Model 6001: Marine Personal Computer with redundant network interface (type 98.6.001.7xx)
- TFT Colour Graphic Screen (type 98.6.02x.00x)
- Operator Keyboard (type 93.6.02x.00x)
- Engineering Keyboard (type 76.0.200)
- Keyboard/Trackerball (type 93.6.02x.x0x)
- Ethernet HUB/Router (type 76.0.81x)
- Model 6010: Fieldbus Driver Board (type 98.6.010.7xx)

2. EAS: Extension Alarm System for the remote alarm indication consisting of:

- Local Operator Panel (type 98.6.02x.6xx)
- 3/8 Channel LED Panel (type 93.0.31x)
- Fire Alarm Panel (type 98.6.021.60x)
- Watch Entrance Unit (type 93.0.359)
- Reset Box (type 93.0.351)
- Bedroom Buzzer (type 93.0.363)

3. PCU: Process Control Units Maxi-Guard/Mega-Guard DIN Rail Model for processing of inputs, outputs, alarms and control loops, comprising following components:

- Model 6030: 12 x Digital Input/ 8/12 x Digital Output, DIN Rail Model (type 98.6.030.7xx)
- Model 6032: 24 x Digital Input, DIN Rail Model (type 98.6.032.7xx)
- Model 6034: 16 x Analog Input/Output, DIN Rail Model (type 98.6.034.7xx)
- Model 6049: Control Processor w/red net interface, Din Rail Model (type 98.6.049.7xx)



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- Display Panel (type 98.6.02x.6xx)
 - Serial Interface Converter (type 91.6.040.40x)
 - Sensor Supply Module (type 98.6.010.7xx)
4. BMS/PCS: Brige Manoevering System / Propulsion Control System, comprising of:
- All Models mentioned under PCU
 - Bridge/Control Room Command Lever and Telegraph Panel (type 98.6.02x.62x)
 - BMS Telegraph Panel (type 98.6.02x.62x)
 - Bridge Order Printer Panel (type 98.6.02x.63x)
 - Telegraph and Safety Panel (type 98.6.02x.63x)
 - Governor Panel (type 98.6.02x.60x)
 - Emergency Stop, DIN Rail Module (type 98.6.034.7xx)
 - Electronic Drive Unit (type 98.6.010.7xx)
 - Electronic Actuator (type 98.0.3xx)
 - 7" TFT Operator Panel (type 98.6.02x.62x)
 - BMS Indication/Command Panel (type 98.6.02x.62x)
 - BMS Command Panel (type 98.6.02x.64x)
 - BMS Indication Panel (type 98.6.034.7xx)
5. AHS: Anti Heeling System comprising of:
- Model 6001, TFT Colour Graphic Screen, Operator keyboard, Keyboard/Trackerball as referenced under OWS
 - All modules referenced under PCU
6. PMS: Power Management System comprising of:
- All models referenced under PCU
 - PMS Input/Output, DIN Rail Module (type 98.6.034.7xx)
 - Local Operator Panel as referenced under EAS
 - 7" TFT Operator Panel as referenced under BMS/PCS

System Software Revisions as found in:
Software Revison List_Rev1.21.doc. Dated 2008-01-25.

CAMMAIN.EXE	Rev. 4.xx and 5.xx
MEGA-GUARD.EXE	Rev. 6.xx
60XX_XXX.HEX	Rev. 1xx, 2xx, 3xx, 4xx
LOP_XXX.HEX	Rev. 1xx
Functional Keyboard	Rev. 2.xx, 3.xx



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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 block diagram
- Power supply arrangement (may be part of the System block diagram)
- Functional description
- Instrument list
- Test program for certification

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

The current software numbers and versions and the revisions for each software are listed in document Software Revision List_Rev1.21.doc, dated 2008-01-25, as shown above.

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.

Clause for application software control.

All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV for evaluation and approval.

Major changes in the software are to be approved before installed in the computer.

A Certification of Application Functions may be required for the particular vessel.

Type Approval documentation

Test report from IWECO 5166053-88-1 dated November 1988.

Functional Specification Version 2.2 page 1-42.

Drawing NP873720, NP873740, S6001, S60035, S6003D, S6004B, S6005C, S6007C, S6008B, Flow Diagram FDA, -DDBS.

At renewal/extension 2002:

Ring binders "G-Data, Maxi/Mega-Guard / Control, Monitoring & Alarm System Project Binder vol 1-3" containing:

Vol.1:

1. Letter to DNV



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2. Company profile
3. Colour Brocures G-Data, Maxi-Guard, Mega-Guard
4. Test specification: Env. Test Report, Type Approval Test
5. TA certificate copies
6. Software History Rev. list Rev. 1.8, dated 02-09-18
7. Reference List

Vol.2:

1. Maxi-Guard Operator Work Station/ Extension Alarm System/ Operator Guide
2. Mega-Guard Operator Work Station/ Extension Alarm System/ Operator Guide
3. Mega-Guard Process Control Unit/ Operator Guide
4. Mega-Guard Power Management System/ Operator Guide
5. Mega-Guard Propulsion Control System (for 2-stroke engines) Operator Guide

Vol.3:

1. KEMA test report 93130-KRQ/EMC 99-4334 (EN45001)
2. Test Forms G-MOWS/G-CAM
3. Test Forms G-ELPA
4. Test Forms G-EGOV
5. Test Forms G-PROP
6. Notes to the CISPR16 (EMC) tests for LOP and Electronic Actuator

Software Revision History List Rev.1.10 dated 2004-10-19.

Software Revison List_Rev1 20.doc. Dated 2007-01-26. (Electronic file in 262.1-002808)

Certification Retention Survey Report; DNV Id. No.: ROT 07.2477.1. Dated: 2007-01-15.
DNV Rotterdam

At renewal/extension 2009:

Ring binders "G-Data, Maxi/Mega-Guard / Control, Monitoring & Alarm System Project Binder vol 1-4" containing:

Vol.1:

1. Company Profile
2. Product Overview
3. Type Approval Certificates
4. Software Revision List
5. Reference list
6. Operator Guide Mega-Guard Operator Work Station
7. Operator Guide Maxi-Guard Operator Work Station
8. Operator Guide Mega-Guard Process Control Unit (DPU/SAU)
9. Operator Guide Mega-Guard Process Control Unit (DPU/SAU)

Vol.2:

10. Operator Guide Bridge Manoeuvring System
11. Operator Guide Power Management System



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12. Operator Guide ARPA
13. Operator Guide ECDIS

Vol.3:

14. Operator Guide Dynamic Positioning
15. Test Reports

Vol.4:

16. Test Reports
17. Front Sheets Binders
18. Proposal Text TA Certificate

DNV Rotterdam Certificate retention survey report for A-10266, dated: 2009-04-03

Tests carried out

Applicable tests acc. to S.f.C.2.4

Certificate retention survey

The scope of the retention/renewal survey 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 survey 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.

Retention survey is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE