Type Approval Certificate
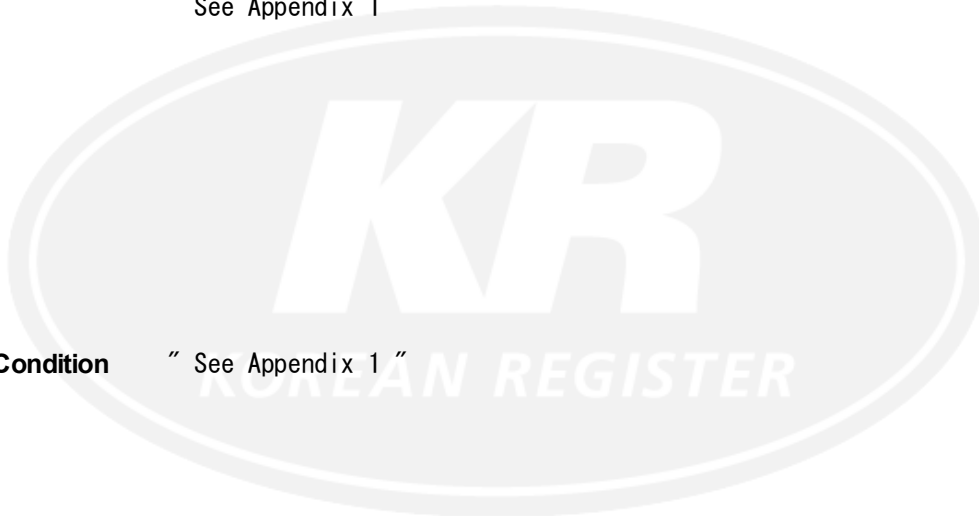
KR KOREAN REGISTER

[Alarm, Monitoring and Control System]

Initial Approval	29 June 2009
Manufacturer	Praxis Automation Technology B.V
	Zijldijk 24A, 2352 AB Leiderdorp, The Netherlands
Product Description	Ship Automation System (Type : Mega-Guard)
	″ See Appendix 1 ″
Approval Condition	″ See Appendix 1 ″

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt. 6, Ch. 2, Art. 301 of the Rules for Classification, Steel Ships.

This Certificate is valid until 28 June 2029

Issued at Busan, Korea on 5 September 2024

This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "http://e-cert.krs.co.kr" by using the tracking No(ME24043684440) and certificate No.(RTD23958-AC001).

KOREAN REGISTER

General Manager of
Marine & Ocean Equipment Team

Product Description and/or Approval Condition

A. Product Description

1. This system consists of the following items.

    1) OWS - Operator Work Station (also named 'All in one' Work Station) consisting of;
       - TFT colour Graphic screen (type 98.6.02x.6xx.x)
       - 5.7" Touch TFT screen (type 93.0.98x)
       - Panel PC 10"   (type 98.6.022.84x.x)
       - Panel PC 15.6"   (type 98.6.022.86x.x
       - Panel PC 17"   (type 98.6.022.87x.x)
       - Panel PC 19"   (type 98.6.022.82x.x)
       - Panel PC 22"   (type 98.6.022.88x.x)
       - Panel PC 24"   (type 98.6.022.885.x)
       - Panel PC 26"   (type 98.6.022.89x.x)
       - Operator Keyboard (type 93.6.02x.00x)
       - Keyboard/Tracker ball (type 93.6.02x.x0x)
       - Ethernet switch 8 ports 24VDC (type 98.6.040.802)
       - Ethernet switch 18 ports 24VDC (type 98.6.040.803)
       - DIN module Media converter RJ45 <-> Fiber ST (type 98.6.040.806)

    2) EAS - Extension Alarm System for the remote alarm indication consisting of;
       - Local Operator Panel (type 93.0.96x)
       - Local Operator Panel 5.7" TFT (type 93.0.98x)

    3) PCU - Process Control Units Maxi-Guard/Mega-Guard DIN Rail Model (also called DPU or SAU)
            for processing of inputs, outputs, alarms and control loops, consisting of;
       - Model 6030, 18 x Digital input / 18 x Digital output executed as Din rail model
         (Type 98.6.030.8xx)
       - Model 6032, 36 x Digital Input unit executed as Din rail model (type 98.6.032.8xx)
       - Model 6034, 24x Analog input /mixed input output executed as Din rail model
         (type 98.6.034.8xx)
       - Model 6034, Addressable fire alarm input output executed as Din rail model
         (type 98.6.034.8xx)
       - Model 6034, Conventional fire alarm input output executed as Din rail model
         (type 98.6.034.805)
       - Model 6034, Addressable fire alarm input output executed as Din rail model
         (type 98.6.034.804)
       - Model 6049, Control Processor executed as Din rail model with redundant network
         interface executed as Din rail model (type 98.6.049.8xx)
       - Serial Interface Converter (type 91.6.040.40x)
       - Serial Interface Converter (type 91.6.040.80x)
       - USB to NMEA Interface (type 98.6.040.80x)
       - Window Wiper Panel (type 93.0.95x)
       - Window Wiper Panel 5.7" TFT (type 93.0.98x)
       - Window Wiper I/O Module (type 98.6.030.80x)
       - Navigation Lights Panel (type 93.0.93x)
       - Navigation Lights Panel 5.7" TFT (type 93.0.98x)
       - Nav. Lights I/O-module (type 98.6.030.80x)
       - Fire Alarm Panel (type 93.0.94x)
       - Fire Alarm Panel LCD (type 93.0.96x)
       - Fire Alarm Panel 5.7" TFT (type 93.0.98x)
       - LCD Operator Panel (type 93.0.96x.x)
       - 5.7" TFT Operator Panel (type 93.0.980/981)
       - HCS Operator Panel (type 93.0.99x)
       - DP Thruster Controller (type 98.6.049.801)

    4) BMS - Bridge Manoeuvring system (also called PCS) consisting of;
       - All models mentioned under PCU
       - Electronic Drive Unit (type 98.6.010.7xx)
       - Electronic Actuator (type 98.0.3xx)
       - 8" TFT Operator Panel (type 98.6.02x.6xx)
       - PCS Control lever (Type 98.6.022.621x)
       - PCS Azimuth control lever (Type 98.6.022.622x)
       - Control lever (type 98.6.022.623x)
       - Azimuth lever (type 98.6.022.624x.x)

Product Description and/or Approval Condition

5) AHS – Anti Heeling System comprising of;
   – All models mentioned under OWS
   – All models mentioned under PCU
   – Inclinometer (type 98.0.23x)

6) PMS – Power Management System consisting of;
   – All models mentioned under PCU
   – PMS input/output Din module (type 98.6.034.7xx)
   – PMS input/output Din module (type 98.6.034.8xx)
   – 8″ TFT Operator Panel (type 98.6.02x.6xx)
   – Display and Operating module (type 98.6.02x.6xx)
   ※ Overload trip, Reverse Power Trip, Low-/High Frequency Trip/ Low-/High Voltage Trip,
     Standby Start, Synchronising, Preferential Trip, Load Sharing, Low Load Stop,
     Manual Start/Stop, Safety System
   ※ Application software version 1.x (up to 3 DG's), version 2.x (up to 5 DG's),
     version 3.x (up to 9 DG's)

7) BNWAS – Bridge Navigational Warning & Alarm System comprising of;
   ? 5.7" TFT Touch Operator Panel Part number (type 93.0.982.x and type 93.0.983.x)
   ? I/O Module Part Number (type 98.6.030.805)
   – Local Operator Panel with buttons and integrated I/O (type 93.0.970)

8) DP – Dynamic Positioning system comprising of;
   – All modules under OWS
   – All modules under PCU
   – 8″ TFT Operator Panel (type 98.6.02x.6xx)
   – Joystick and Rate of Turn Panel (type 98.6.02x.6xx)

9) UPS – Uninterruptible Power Supply comprising of;
   – 230VAC Series UPS
   – 24VDC Series UPS
   – UPS input module (type 93.4.504/93.4.505)
   – UPS distribution module (type 93.4.503)

B. Basic software/firmware

Device	Pro-series	E-series	Description
MPC	MEGA-GUARD.EXE (rev.5.xx)	MEGA-GUARD (rev.6.xx)	Data collection, central visualization and HMI
XP	60XX_xxx.HEX (rev.1.xx ~ 4.xx)	–	Data processing
XP	DIN (rev.2.x)	app-xxx; loader-xxx (rev2.x)	Data processing, Local data visualization and local HMI
Local Operator Panel/LCD Panel	LOP_xxx.HEX (rev. 1.xx)	app-xxx; loader-xxx (rev2.x)	Data processing, Local data visualization and local HMI
Functional keyboard	Functional keyboard (rev. 2.xx, 3.xx)	Functional keyboard (rev. 2.xx, 3.xx)	Dedicated(limited) operator keyboard
I/O Modules	IO Modules (rev.2.x)	IO Module (rev.2.x)	Data acquisition
Stand-alone	PANEL (rev.1.x)	PANEL (rev.1.x)	Stand-alone panels (Alarm Panel and Window Wiper) data processing and visualization

Product Description and/or Approval Condition

C. Approval Condition

1. This approval is granted on the basis of the following test reports.
   - 1 Mega-Guard-Type approval augustus 2006 Rev 1.0.doc (30-Jan-2008, Rev.:1.0)
   - 3 Mega-Guard-Type approval 2008_3 Rev 1.0.doc (30-Jan-2008, Rev.:1.0)
   - 4 Mega-Guard-Type approval 2008_4 Rev 1.1.doc (30-Jan-2008, Rev.:1.1)
   - Environmental Test Report, Ship Automation System (09-Sep-2010, Rev.:1.2)
   - Environmental Test Report, Ship Automation System (21-Jun-2011, Rev.:1.2)
   - Environmental Test Report, Ship Automation System (19-Aug-2013, Rev.:1.2)
   - Environmental Test Report, Ship Automation System (12-Jun-2009, Rev.:1.0)
   - Environmental Test Report, Ship Automation System (4-Dec-2015, Rev.:1.2)
   - Environmental Test Report, Ship Automation System (28-April-2016, Rev.:1.1)
   - BICON Test Report No. PRA-20180824-X1 (15-Nob-2018)
   - DARE Test Report No. 09C00180RPT01 (7-May-2009)
   - PRAXIS ESD Additional Test Report Rev.1.00 (19-March-2020)
   - Test report PRA-20210930-X1_01 (29-Oct-2021)
   - Test report PRA-20210930-X1_02_SE (29-Oct-2021)
   - Test report PRA-20210930-X1_03 (29-Oct-2021)
   - Test report PRA-20210930-X1_04 (29-Oct-2021)
   - IEC 62923 Test Report-R1.01 RB (12-Jan-2024)
   - Test report PRA-20230725-X2-SE (5-Oct-2023)
   - Test report PRA-20230725-X3-ANS (16-Oct-2023)
   - Test report PRA-20230725-X3-CSD (16-Oct-2023)

2. The manufacturer is to inform the Society of all kinds of revisions of the equipment including software. If the changes are recognized to affect functionality of the approved equipment, type test to confirm the reliability of the revised equipment may be performed in the presence of our surveyor.

3. Degree of protection is to be complied with Rule Pt.6 Ch.1 Sec.2 201.2.(5).

4. The product or packing is to be marked with the manufacturer's name and type designation on a suitable position.

5. Unless specially directed by the Administration, the approval for BNWAS is not to be interpreted as a replacement for approval from the flag Administration.

6. In case where this system is installed on board, the system drawings for individual vessel are to be approved by this Society.

7. Individual Product Certification is required.

< End of Certificate >