



Marine &amp; Offshore

Certificate number: 29148/B0 BV

File number: AP4368

Product code: 4501H

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

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## TYPE APPROVAL CERTIFICATE

*This certificate is issued to*

**NORIS Automation GmbH**

Rostock - GERMANY

*for the type of product*

**PROGRAMMABLE LOGIC CONTROL UNITS**

NORISYS 4

### Requirements:

Bureau Veritas Rules for the Classification of Steel Ships.

EC-Code: 31B or 33 (see item 4.x)

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 21 Jun 2023**

**For Bureau Veritas Marine & Offshore,**

At BV HAMBURG, on 21 Jun 2018,

Dirk Hoepfner



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site [www.veristar.com](http://www.veristar.com). Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 4 page(s)

## THE SCHEDULE OF APPROVAL

### **1. PRODUCT DESCRIPTION:**

The **NORISYS 4** platform is a programmable logic controller with process interface units.

#### **1.1 - NORISYS 4 series:**

##### **Main characteristics:**

Power Supply: 24V DC  
 Degree of protection: IP30  
 Mounting: DIN-Rail or flange mounting

##### **NORISYS 4 CPU**

Connections: 2x Ethernet, 2x CAN-Bus, 1x RS232, RS422, RS485, 1x USB, 1x SDCard memory  
 Inputs: 4x digital inputs 24V DC  
 Outputs: 4x relay outputs 30V DC, 2A  
 Processor: SC243, 32Bit, 400MHz, 64MB RAM, 32MB Flash  
 Operating System: IPC@Chip RTOS  
 Hardware version: H05  
 Firmware version: RTS: V1.05; RTOS: V1.10

##### **NORISYS 4 24DIO-Extension module**

Inputs / Outputs: 24x digital inputs 24V DC or outputs 24V DC/ 0.5A  
 Processor: ARM7, LPC2364, 32Bit, 72MHz  
 Hardware version: Rev. d  
 Firmware version: Rev. 82

##### **NORISYS 4 UNIO-Extension module for Signal boards**

Number of signal boards: up to 2 signal boards  
 Processor: ARM7, LPC2364, 32Bit, 72MHz  
 Hardware version: Rev. c  
 Firmware version: Rev. 82

#### **Signal boards for NORISYS 4 UNIO**

##### **4AI-Signal board:**

Inputs: 4x analogue inputs 0/4..20mA, 0..5V, -5..5V, 0..10V, -10..10V, galvanic isolated  
 1x digital input 24V DC  
 Outputs: 1x relay output 24V DC/ 0.5A  
 Hardware version: Rev. c

##### **4AO-Signal board:**

Inputs: 1x digital inputs 24V DC  
 Outputs: 4x analogue outputs 0/4..20mA, 0..5V, -5..5V, 0..10V, -10..10V, galvanic isolated  
 1x relay output 24V DC/ 0.5A  
 Hardware version: Rev. d

##### **8PT100-Signal board:**

Inputs: 8x PT100  
 Hardware version: Rev. a

#### **1.2 - NORISYS 4 IOeco Extension modules:**

##### **Main characteristics:**

Power Supply: 24V DC  
 Degree of protection: IP20  
 Mounting: DIN-Rail

##### **NORISYS 4 32DI-Extension module**

Inputs: 32x digital inputs 24V DC  
 Hardware version: Rev. A  
 Firmware version: Rev. 1.1x

**NORISYS 4 16DI8R-Extension module**

Inputs / Outputs: 16x digital inputs 24V DC  
8x relay outputs (CO) 250V AC/ 6A

Hardware version: Rev. A

Firmware version: Rev. 1.1x

**NORISYS 4 16DI4AI4AO-Extension module**

Inputs / Outputs: 16x digital inputs 24V DC;  
4x analogue inputs 0/4..20mA; -10..10V DC; 0..10kOhm; Pt100; Pt1000; Thermocouple K;  
4x analogue outputs 0..22mA; -11..11V DC; galvanic isolated by pairs  
2x relay output 24V DC/ 2A

Hardware version: Rev. c\_1A1

Firmware version: Rev. 1.1x

**NORISYS 4 16AI-Extension module**

Inputs: 16x analogue inputs 0/4..20mA; -10..10V DC; 0..10kOhm; Pt100; Pt1000; Thermocouple K

Hardware version: Rev. B

Firmware version: Rev. 1.1x

**2. DOCUMENTS AND DRAWINGS:**

- NAR-KD-0100-1-en V 1.65 dated 31/08/15; NAR-PD-0139-1-de V 1.00 dated 19.01.2015;  
- NAR-PD-0139-10-en V1.01 dated 30.09.2015; NAR-PD-0139-50-en V 1.00 dated 29/09/15;  
- NAR-PD-0139-51-en, V1.05 dated 29/09/15; NAR-PD-0100-2-en V. 0.16 dated 15/08/11;  
- NAR-PD-0100-4-en V. 1.01 dated 08/03/12; NAR-PD-0100-5-en V. 1.01 - 08/03/12;  
- NAR-PD-0100-6-en V. 1.01 dated 08/03/12; PR-NORISYS4 en V01.00 dated 08/2010

Overview Suppliers: NAR-PD-0139-10-en V1.01; NAR-PD-0100-10-en V. 1.00

Drawings: - HG-N4-16AI-1 Rev. b; HG-N4-16DI4AI4AO-1 Rev. d; HG-N4-16DI8R-1 Rev. c; HG-N4-32DI-1 Rev. b;  
- SA746-1 Rev. A; SA747-1 Rev. A; SA748-1-1 Rev. A; SAR155-c; SAR40-c; SAR41-c; SAR42-d; SAR43-a;  
- 091.001.03.xxx; 091.002.03.xxx; 091.003.03.xxx; 00748365 Rev. H05; 00748392 Rev. H05; 81028622 Rev. 04;  
Part List: - 00570575 rev. V03; 00570637 Rev. V05; 00570638 Rev. V01; SL40-c V1.04; SL41-c V1.06; SL42-d V1.06;  
- SL43-a V1.02; SL155-c\_1A1 Rev. c; SL1342-1 Rev. a; SL1343-1 Rev. a; SL1344-1 Rev. a; SL1345-1 Rev. 1;  
- SL1346-1 Rev. A; SL1347-1 Rev. A; SL1348-1 Rev. A;

**3. TEST REPORTS:****NORIS Automation GmbH:**

- NAR-PB-0139-1-en V. 1.30 dated 2015-09-24; TTBMPI2-001\_NAR Ver. 01 dated 24.01.2012;  
- NAR-PB-0100-3-en V. 1.01 dated 2012-01-26; NAR-PB-0100-4-en V. 1.01 dated 2012-01-24;  
- NAR-PB-0100-5-en V. 1.01 dated 2012-01-24; NAR-PB-0100-6-en V. 1.01 dated 2012-01-24;  
- FMEA NORISYS 4 IOeco Rev. a dated 25.09.2015; FMEA NORISYS 4 CPU Rev. d dated 21.06.2011;  
- FMEA NORISYS 4 24DIO Rev. d dated 21.06.2011; FMEA NORISYS 4 UNIO Rev. g dated 21.06.2011

**Teseq GmbH:**

- D/14/4290/02 EN dated 2015-08-04; D/14/4290/03 EN dated 2015-08-04; D/11/3863/01 dated 2011-12-08;  
- D/11/3863/02 dated 2011-10-27; D/11/3863/03 dated 2011-10-27; D/11/3863/04 dated 2011-11-03;  
- D/11/3863/08 dated 2012-05-11

**TÜV Rheinland:**

- E5.664 Part A dated Dec.13, 2011; E5.664 Part B dated Dec.13, 2011

**TREO Labor für Umweltsimulation GmbH:**

- 045-15 V2U Rev. 2 dated 13-Apr-15;

**4. APPLICATION/LIMITATION:**

- 4.1 - Bureau Veritas Rules and Regulations for the Classification of Steel Ships.
- 4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS, AUT-CCS, AUT-PORT** and **AUT-IMS**.
- 4.3 - Bureau Veritas Environmental Category, **EC Code: 31B** (for DIN rail mounting) or **33** (for flange mounting).
- 4.4 - The **NORISYS 4 CPU** and **NORISYS 4 24DIO Extension module** fulfils the EMC requirements for installation on Bridge and Deck Zone by using a filter on power supply lines, order no.: XT-FIL-1.
- 4.5 - The other equipment fulfils the EMC requirements for installation in Bridge and Deck Zone.
- 4.6 - Documents relating to each application are to be submitted to the Society's examination prior fitting on board.
- 4.7 - Depending on the application, Factory Acceptance and On-board Tests are to be performed in accordance with requirements for Category II or III Equipment.
- 4.8 - Only Hardware and Firmware / Software successfully tested together in compliance with the regulations as referred to in page one, according to the declaration of the manufacturer is covered by this certificate.
- 4.9 - The installation shall comply with the Manufacturer's recommendation described in the above-referenced documentation.

**5. PRODUCTION SURVEY REQUIREMENTS:**

5.1 - The above mentioned products are to be supplied by **NORIS Automation GmbH** in compliance with the type described in this certificate.

5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.

5.3 - **NORIS Automation GmbH** has to make the necessary arrangements to have its works recognized by Bureau Veritas in compliance with the requirements of NR320 for HBV products:

**NORIS Automation GmbH**  
**Friedrich-Barnewitz-Str. 10**  
**18119 Rostock**  
**GERMANY**

5.4 - Equipment is to be supplied with manual(s) for installation, use and maintenance.

**6. MARKING OF PRODUCT:**

- Maker's name or trademark
- Date of manufacture and/or serial number
- Equipment type or model identification
- The title and version of each software element included in the installed software system shall be either marked or displayed on command on the equipment.

**7. OTHERS:**

7.1 - It is the responsibility of **NORIS Automation GmbH** to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This certificate supersedes the Type Approval Certificate N° 29148/A1 BV issued on 13 Oct 2015 by the Society.

\*\*\* END OF CERTIFICATE \*\*\*