



MARINE DIVISION

Certificate number: 23152/A0 BV

File number: AP4132

Product code: 4410H

*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*

**Böning Automationstechnologie GmbH & Co. KG**  
Ganderkesee - GERMANY

*for the type of product*

### INTERNAL COMBUSTION ENGINE LOCAL MONITORING PANEL

Alarm-, Start-/Stop- and Safety System for Diesel Engines  
of type: AHD 514

**Requirements:**

Bureau Veritas Rules for the Classification of Steel Ships

*This certificate is issued to attest that BUREAU VERITAS 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 Sep 2015**

**For BUREAU VERITAS,**

At BV HAMBURG, on 21 Sep 2010,

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. 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 Division available on the internet site 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 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.

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION :

The modules and panel of **AHD 514** system are intended to be used on a diesel engine for the following functions:.

- Monitoring and alarm
- Local Indication of parameters and status
- Start/Stop
- Engine protection (automatic and manual)

#### **1.1 - Main Specifications:**

- Power Supply: 24 VDC
- Protection index: IP20 for modules and panel, IP44 for front side of panel, IP10 for relay station

#### **1.2 - Characteristics:**

**AHD 514-A:** Alarm system and start/stop system

Software version : V3.11

- 6 analog inputs (4...20mA)
- 6 analog inputs (PT100/PT1000)
- 1 engine speed input (galvanic isolated)
- 2 binary inputs (wire break monitored)
- 8 binary inputs (control)
- 2 binary inputs (fuse trip, charging alternator)
- 8 relay outputs (potential free)
- 2 transistor outputs (wire break monitored)
- 1 analog output (1...5V, 1...10V)
- 2 status LED's
- 2 CAN bus interfaces
- 1 RS232 for diagnostic
- serial I/O for extensions

**AHD 514-S:** Safety system

Software version: V1.11

- 2 binary inputs (wire break monitored, emergency stops)
- 5 binary inputs (wire break monitored, automatic stops)
- 1 engine speed input (galvanic isolated)
- 4 relay outputs (potential free)
- 3 transistor outputs (wire break monitored)
- 1 analog output (4...20mA)
- 10 status LED's
- 1 CAN bus interface
- 1 serial output for an extension

**AHD 514-OP:** Operator panel

Software version: V1.17

- 5.7" LCD color display (640x480 pixels)
- 7 membrane keys
- 2 status LED's
- 1 CAN bus interface

**AHD-R101:** Relay station

Software version: V1.53

- 15 relay outputs (potential free)
- 2 serial inputs

### 2. DOCUMENTS AND DRAWINGS :

- Operating Instruction DiV-1238, dd.: 2010-03-29
- Data sheet: GoS-1024 Rev.:17.09.2008 for AHD-R101
- Diagrams: AHD570D1-081201DD, AHD514D1-090501DD, AHD\_514SD1\_090201DD

### 3. TEST REPORTS :

- paconsult GmbH: 09-2664 dd.: 23Oct.2009, 09-2665 dd.: 13Nov.2009 and 08-1893 Rev.2 dd.: 09June,2008
- Carl Zeiss Jena GmbH: P-QK/EMV 060/2009\_02 dd.: 2010-06-08 and SJ-QP/EMV 053/2006 dd.: 30.01.2007
- EMV Services GmbH & Co. KG: 09/9062-2-1 dd.: Nov.09,09 and 06/6135-2 dd.: Dec.29,06
- RMS 03-12/2006 dd.: 2007-01-31

**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: 33**  
4.4 - The equipment fulfils the EMC requirements for installation on the Bridge and Deck Zone.  
4.5 - The equipment, once installed on board ship, is to be tested in accordance with the above referred Regulations under the supervision of a Society's Surveyor.  
4.6 - Each application and configuration is to be submitted to the Society's examination prior to fitting on board.  
4.7 - Applications with two operator panels for an engine or a panel on the bridge are to be evaluated in each case.  
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 are covered by this certificate.

**5. PRODUCTION SURVEY REQUIREMENTS :**

- 5.1 - The above mentioned modules and panel are to be manufactured, examined and tested by **Böning Automationstechnologie GmbH & Co. KG** in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification of Steel Ships.  
5.2 - Production sites are to be recognized by Bureau Veritas as per NR320 for HBV products. To this end **Böning Automationstechnologie GmbH & Co. KG** has to make the necessary arrangements for a Society's Surveyor to perform visits and product audits at the production sites.  
5.3 - **Böning Automationstechnologie GmbH & Co. KG** has declared to Bureau Veritas that the type of product described in this certificate may be manufactured at the following production sites :

**Böning Automationstechnologie GmbH & Co. KG**  
**Am Steenöver, 4**  
**27777 Ganderkesee**  
**GERMANY**

**6. MARKING OF PRODUCT :**

- Maker's name or trade mark.
- Serial number of the units.
- Equipment type number or model identification under which it was type-tested.

**7. OTHERS :**

This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the units at any time and that **Böning Automationstechnologie GmbH & Co. KG** will accept full responsibility for informing shipbuilders, shipowners or their sub-contractors of the proper methods of use and general maintenance of the units and the conditions of this approval.

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