



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **A-11804**

This is to certify that the
Engine Safety, Control and Alarm System

with type designation(s)
AHD 414 start-stop control and monitoring unit, AHD 414A alarm and safety unit

Manufactured by
Böning Automationstechnologie GmbH & Co.KG
GANDERKESEE, Germany

is found to comply with
Det Norske Veritas' Rules for Classification of Ships and Det Norske Veritas' Offshore Standards

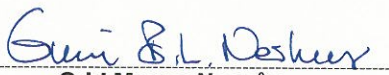
Application
Location classes:

Type	Temperature	Humidity	Vibration	EMC	Enclosure
AHD 414 start-stop control and monitoring unit	B	A	A	A	IP 54 (front panel)
AHD 414A alarm and safety unit	B	A	A	A	IP 54 (front panel)


Høvik, 2010-05-27
for **Det Norske Veritas AS**



This Certificate is valid until
2012-06-30


Odd Magne Nesvåg
Head of Section

DNV local office:
Essen


Poul Tranborg
Surveyor

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.



Certificate No.: A-11804
File No.: 852.60
Job Id.: 262.1-005264-2

Product description

AHD 414 is a microprocessor controlled diesel engine start-stop control and monitoring unit.

Basic software identification: AHD 414 1C 60 F5

Project related software identification: AHD 414 1C XXXX

(X = acc. to manufacturers project identification)

AHD 414A is a microprocessor controlled diesel engine safety and/or alarm unit.

Basic software identification: AHD 414 A A 7676 for safety system

AHD 414 A A 6A9A for alarm system

Project related software identification: AHD 414A AXXXX

(X = acc.to manufacturers project identification)

Approval conditions

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

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

- Reference to this Type Approval Certificate
- Power supply arrangement (e.g. shown in a system block diagram)
- Functional description and identification of software (if project specific functions have been programmed)

As long as the units are covered by the Type Approval, no product certificate will be required according to Pt.4 Ch.9 Sec.1 A 202.

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 being installed in the computer.

Type Approval documentation

AHD 414A booklet with product leaflet, 4 page description dated 24.04.08, alarm unit and safety unit drawings showing front layout, board layout, I/O parameter addresses, terminal arrangement, etc., circuit diagrams

AHD 414 booklet with product leaflet, 5 page description dated 23.04.08, 4 sheets unit drawing showing front layout, board layout, I/O parameter addresses, terminal arrangement, etc., circuit diagrams

Test reports:

RMS No. 1-04/96 dated 30. April 1996 including AHD 414A

MAZ No. 96/6030-1-4 dated 22.04.96 covering EMC for AHD 414A

Atlas Elektronik GMBH dated 16.04.1993 including EMC for AHD 414

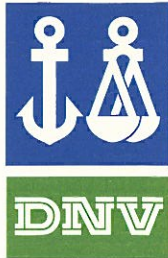
Aqua Signal dated 04.08.93 including AHD 414

Retention survey report dated 2010-05-11

Tests carried out

Environmental tests according to S.f.C. 2.4, April 2001

Functional Type Test carried out 2002-02-14



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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.

Survey to be performed at renewal of this certificate.

END OF CERTIFICATE