



DNV

DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. A-8389

This Certificate consists of 3 pages

This is to certify that the
Programmable Electronic System

with type designation
Advant Controller 31
as listed on page 2

Manufactured by
ABB Control
Chassieu Cedex, France

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

Application

Location classes :

Temperature	B
Humidity	B
Vibration	B (see page 2)
EMC	B
Enclosure	A

Place and date
Høvik, 2002-07-12
for DET NORSKE VERITAS AS

This Certificate is valid until
2004-06-30

Knut-Helge Knutsen
Head of Section

Local Office
DNV Lyon

Birger W. Bulukin
Birger W. Bulukin
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. 862.50

Product description

The following units are included in the Type Approval:

07 CR 41-O33	Central Unit
07 CT 41-Q33	Central Unit
07 KR 51-R33	Central Unit
07 KT 51-Q33	Central Unit
AFR-9-K26	Central Unit
XI 16 E1-E4	Binary Input Unit
XO 16 N1-C3	Binary Output Unit
XO 08 R1-B4	Binary Output Unit
*XO 08 Y1-A2	Binary Output Unit
XE 08 B5-D4	Analogue Output Unit
XK 08 F1-A3	Binary I/O Unit
*XC 08 L1-D4	Binary I/O Unit
XM 06 B5-G10	Analogue I/O Unit
XTC 08-C2	Display Module
ICMK 14 F1-K10	Binary I/O Unit
ICMK 14 N1-J10	Binary I/O Unit
TC 50 / AF1000-A29/B2	LED displays

* tested at 1 g (fulfills class A only)

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV Rules for Ships / MOU Pt.4 Ch.9 Instrumentation and Automation.

Conditions for application functions.

Approval Test of Application Software will be required when the hardware is used in applications to be classed by DNV. The test is to be performed at manufacturer's works according to an approved test program for the actual application in the presence of DNV. The test is only to be performed for the first delivery if there are sister vessels.



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Tests carried out

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

Type Approval documentation

- System Description Advant Controller 31 ISAC 1316 99 R0201, issued 03.99
- Environmental test report QTR-F17 dated 94-08-26, test report No. 50104-2828 dated 1993-08-18.
- Test Report No. 4277/98 / BFSV of November 17th, 1998 (report from vibration tests)
- Test Report No. 4283/98 / BFSV of 20.01.1999 (report from climate tests)
- DECRC-E3-01/43-93/320, EMC report of 30.Mar. 99
- DECRC-E3-01/38-93/327, EMC report of 15.June. 00

Tests carried out

Tests according to Standard for Certification No. 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.

Survey to be performed at renewal of this certificate.

END OF CERTIFICATE