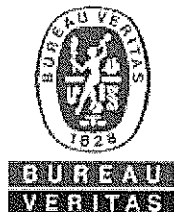


MARINE DIVISION

17 bis Place des Reflets - La Défense 2
92400 Courbevoie - France

Tel. 33 1 42 91 52 91
Fax. 33 1 42 91 28 94
www.veristar.com



Certificate number: 14778/A0 BV

File number : AP3697

Product code : 4501H

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

TYPE APPROVAL CERTIFICATE

as per Bureau Veritas Classification Rules

This certificate is issued to

ABB STOTZ KONTAKT GmbH

Heidelberg - GERMANY

for the type of product

PROGRAMMABLE LOGIC CONTROL UNITS

Advant controller 31, Basic units of type: 07KT98 R0120, 07KT98 R0160 & 07KT98 R0162

Regulations and standards :

BV Rules for the Classification of Steel Ships.
EN 61131-2

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 of the Regulations and standards mentioned above.

This certificate is valid until : 05 Aug 2010

At Paris la Défense, on : 05 Aug 2005

For BUREAU VERITAS,
By order of the Secretary

Approval office

Local office : BV HAMBURG


J. BENOIT





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. 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 :

Advant controller 31, Basic units of type: 07KT98 R0120, 07KT98 R0160, 07KT98 R0162.

1.1 Range of application:

User program	1 MB
User Data	1MB + 256 kB RETAIN + 128kB (Flash EPROM)
Digital inputs	24, electrically isolated
Digital outputs	16 transistor outputs, electrically isolated
Digital inputs/outputs	8, electrically isolated
Analog inputs	8, individually configurable to 0...10 V, 0...5 V, +/-10 V, +/- 5 V, 0...20 mA, 4...20 mA, Pt100 2-wire or 3-wire
Analog outputs	4, individually configurable to 0...10 V, 0...20 mA, 4...20 mA
Serial interfaces	COM 1, COM 2 as MODBUS interfaces
System bus interface	CS31
Intergrated couplers	R0120: Profibus, R0160: ARCNET R0162: ARCNET and Profibus
Power supply	24 V DC, Lithium battery for back-up RAM contents

2. DOCUMENTS AND DRAWINGS :

ABB STOTZ-KONTAKT Catalogue:

- Hardware. Advant Controller 31, Intelligent Decentralized Automation System, Basic Unit 07 KT098 R0160, issued on 07.2000.
- Advant Controller 31 - Serie 90. Dezentrale, intelligente Automatisierung, Bestelldaten - pages: 7/8 to 7/13.
- Advant Controller 31, Hardware, System Data and System Configuration, issued on 10.99.

3. TEST REPORTS :

EMV Rhein - Necker GmbH test report N° 3893-346 dated 09.12.2002.

PACONSULT test report N° 90/02 dated 12.11.2002.

4. APPLICATION / LIMITATION :

- 4.1 Approval also valid for ships to be granted with the notations: AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.
- 4.2 Each application is to be submitted to the Society's consideration.
- 4.3 The machinery protection based on data processing techniques is to be duplicated by another and different system.
- 4.4 In order to lower the radiated emissions, the equipment listed in clause I shall be fitted in appropriate shielded cabinets and used with screened cables.

5. PRODUCTION SURVEY REQUIREMENTS :

- 5.1 Arrangement shall be made for the Society's Surveyor to carry out, on a periodic basis, visit of the Manufacturer's premises and product audits.
- 5.2 Each equipment is to be supplied with its manual for installation, use and maintenance.

6. MARKING OF PRODUCT :

- Maker's name or trade mark,
- Serial number of the units,
- Equipment type 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 **ABB STOTZ KONTAKT GmbH, Heidelberg - GERMANY**, will accept the responsibility for informing shipbuilders 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 *****