



MARINE DIVISION

Certificate number: 31009/B0 BV

File number: AP3904

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

ABB Automation Products GmbH

Heidelberg - GERMANY

for the type of product

PROGRAMMABLE LOGIC CONTROL UNITS

AC500 /S500 and AC 700F / S 700F series

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: 13 Nov 2018

For BUREAU VERITAS,

At BV HAMBURG, on 13 Nov 2013,

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 **AC500 / S500** and **AC 700F / S 700F** series are scalable programmable logic controller and I/O system and may consist of following components:

Designation	Main characteristic	Software version
CPU's		
PM571, PM571-ETH, PM571-ARCNET	Memory: 64KB, Ethernet/ARCNET option	V2.x
PM581, PM581-ETH, PM581-ARCNET	Memory: 256KB, Ethernet/ARCNET option	V2.x
PM582, PM582-ETH, PM582-ARCNET	Memory: 512KB, Ethernet/ARCNET option	V2.x
PM590, PM590-ETH, PM590-ARCNET	Memory: 2048KB, Ethernet/ARCNET option	V2.x
PM591, PM591-ETH, PM591-ARCNET	Memory: 4096KB, Ethernet/ARCNET option	V2.x
EC581-ARCNET	Memory: 256KB, ARCNET	V2.x
PM572	Memory: 128KB	V2.x
PM573-ETH	Memory: 512KB, Ethernet	V2.x
PM583-ETH, PM 783F	Memory: 1MB, Ethernet	V2.x
PM592-ETH	Memory: 4MB, Ethernet	V2.x
I/O-Modules		
DC505 FBP, DC 705F	Decentralize I/O-Station with Fieldbus Interface	V3.x
DC551- CS31	Decentralize I/O-Station with CS31 Interface	V3.x
CI501, CI502	Decentralize I/O-Station with PROFINET	V3.x
CI504-PNIO, CI506-PNIO	Decentralize I/O-Station with PROFINET	V3.x
CI511, CI512	Decentralize I/O-Station with EtherCAT	V1.x
CI541-DP, CI542-DP	Decentralize I/O-Station with PROFIBUS DP	V3.x
CI581-CN, CI582-CN	Decentralize I/O-Station with CANopen	V3.x
CI590-CS31-HA	16xConfigurable digital I/O	V3.x
CI592	8xDigital In, 4xAnalog In, 2xAnalog Out, 8xConfigurable digital I/O	V3.x
AC522, AC 722F	8xConfigurable analog I/O	V3.x
AI523, AI 723F	Analog Out	V3.x
AI531, AI 731F	8xConfigurable analog In	V3.x
AO523, AO 723F	Analog In	V3.x
AX521, AX 721F	4xAnalog I/O	V3.x
AX522, AX 722F	8xAnalog I/O	V3.x
CD522, CD 722F	2xEncoder In, 2xPWM Out, 8xConfigurable digital I/O	V3.x
DA501, DA 701F	16xDI, 8xConfigurable I/O, 4xAI, 2xAO	V3.x
DC522, DC 722F	16xDigital I/O	V3.x
DC523, DC 723F	24xDigital I/O	V1.x
DC532, DC 732F	Digital Inputs, Digital I/O	V3.x
DC541-CM	Digital Inputs, Digital I/O	V1.x
DI524, DI 724F	Digital Inputs	V3.x
DX522, DX 722F	Digital Inputs, Relays Outputs	V3.x
DX531, DX 731F	Digital Inputs, 230V Relay Outputs	V3.x
PD501-4CH	Positioning module; analog inputs; 24VDC-Motor outputs	V3.x
Terminal Units		
TU505-FBP, TU705F, TU506-FBP, TU 706F	Terminal Units for interface modules	n/a
TU509-DP, TU510-DP	Terminal Units for PROFIBUS modules	n/a
TU515, TU 715F, TU516, TU 716F	Terminal Units for I/O modules	n/a
TU517-CNDN, TU518-CNDN	Terminal Units for CANopen or DeviceNet modules	n/a
TU520-ETH	Terminal Units for PROFINET modules	n/a
TU531, TU 731F, TU532, TU 732F	Terminal Units for I/O modules	n/a
TU541, TU542	Terminal Units for PD501	n/a
TU551-CS31, TU552-CS31	Terminal Units for DC551	n/a
TU507-ETH	Ethernet, screw-type terminals	n/a
TU508-ETH	Ethernet, spring terminals	n/a

Designation	Main characteristic	Software version
Terminal Bases		
TB511, TB511-ETH, TB511-ARCNET, TB 711F	1x coupler slot	n/a
TB521, TB521-ETH, TB521-ARCNET	2x coupler slot	n/a
TB541, TB541-ETH, TB541-ARCNET	4x coupler slot	n/a
Communication Couplers		
CM572-DP, CM 772F	Profibus Coupler	V01.x
CM575-DN	DeviceNet Coupler	V01.x
CM577-ETH	Ethernet Coupler	V01.x
CM578-CN	CANopen Coupler	V01.x
CM574-RCOM	RS232, RS485(RCOM)	V2.x
CM574-RS	RS232, RS485(Modbus, ASCII)	V2.x
CM579-PNIO	PROFINET RT	V2.x
CM579-EtherCAT	EtherCAT	V2.x
CM588-CN	CANopen	V1.x
Accessories		
MC502	Memory Card	n/a
TA 524	Dummy Coupler module	n/a
TA 724F	Dummy Coupler module	n/a

Power Supply: 24V DC

Degree of protection: IP20

2. DOCUMENTS AND DRAWINGS:

- System Description of AC500 issued on 08/2005; Main catalogue for AC500 dated 05.2009;
 - Freelance Product Catalog for AC700F, version 9.2 dated: 09/2010
 - DA501 and PM57x/58x/59x-ETH dated 2010-08-03; TU517-CNDN, TU518-CNDN, TU520-ETH dated 15.08.2011
 - CI504-PNIO, CI506-PNIO, CI541-DP, CI542-DP, CI581-CN, CI582-CN, CM588-CM, TU509-DP, 510-DP dated 10.08.2011
- Note:** Documents filed in AP3904

3. TEST REPORTS:

Paconsult GmbH:

- 1094-05 dated 16/10/2006; 0790-05 dated 08/12/2005; 09-2475B dated 06.July, 2009; 11-3684 dated 19 August 2011

EMV Rhein-Neckar GmbH:

- 3893-365 dated 26/06/2006; 3893-359 dated 09/02/2006; 3893-395a dated 06.11.2009; 3893-399 dated 21.07.2010;
- 3893-3105 dated 26.09.2011

TÜV SÜD:

- 71375265 dated 2010-09-03

ABB:

- V2010039 dated 11.08.2010; Clima2010037 dated 25.06.2010; Clima2010003 dated 13.01.2010;
- D2011042 dated 24.10.2011

4. APPLICATION / LIMITATION:

4.1 - Bureau Veritas Rules 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: 31.**

4.4 - Bureau Veritas Environmental Category, **EC Code: 31/41** for: AI531, CD522, CI501, CI502, CI504, CI506, CI541, CI542, CI581, CI582, CI590, CI592, CM574, CM578, CM579, CM588, DC523, DC522, DC532, PM583, PM573, PM590, PM591, PM592, TB511, TB521, TU507, TU508, TU509, TU510, TU516, TU517, TU518, TU520.

4.5 - The product designation of components may be followed by "XC" and additional marked with "*" at the front. These feature leaves the EC Code unchanged.

4.6 - The equipment fulfils the EMC requirements for installation in General Power Distribution Zones.

4.7 - Power supply filter FN 610-3/06 for DC505, DC551 and snap ferrite WE 74270012 for PM581, PM591 are required.

4.8 - Only Hardware and 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.

4.9 - Documents relating to each application are to be submitted to the Society's examination prior fitting on board.

4.10 - Depending on the Application, Factory Acceptance and On-board Tests are to be performed in accordance with requirements for Category II or III Equipment.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The above mentioned components are to be supplied by **ABB Automation Products 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.

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

ABB STOTZ KONTAKT GmbH
Hauptstraße 12
78132 Hornberg
GERMANY

For Terminals:
Welco Technology (Shenzhen) Ltd.
Wanfeng Industrial Estate,
34 The East of Wanzhang Pu,
Shajing, Baoan, Shenzhen, Guangdong
CHINA

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

6. MARKING OF PRODUCT:

- Maker's name or trademark.
- Equipment type or model identification.
- Date of manufacture and/or serial number.
- 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.
- When the marking and the title and version of the software are displayed only on the display, such information shall also be included in the equipment manual.

7. OTHERS:

7.1 - 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 Automation Products GmbH - GERMANY** will accept full responsibility for informing shipbuilders, ship owners or their sub-contractors of the proper methods of use and general maintenance of the units and the conditions of this approval.

7.2 - This certificate supersedes the Type Approval Certificate N° 31009/A0 BV issued on 13 Aug 2012 by the Society.

*** END OF CERTIFICATE ***