



Marine & Offshore

Certificate number: 31009/C2 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 AG

Heidelberg - GERMANY

for the type of product

PROGRAMMABLE LOGIC CONTROL UNITS

AC500 /S500

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships

EC Code: 31 / 41 (see item 4)

This certificate is issued to attest that Bureau Veritas Marine & Offshore 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: 08 Mar 2024**For Bureau Veritas Marine & Offshore,**

At BV HAMBURG, on 17 Jan 2022,

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 Marine & Offshore. 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 & Offshore 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 Marine & Offshore 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.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 5 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

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

Designation	Main characteristic	Software Version
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CPU's

PM582	Memory: 512KB, Ethernet	V2.x
PM590-ETH, PM590-ARCNET	Memory: 2048KB, Ethernet/ARCNET option	V2.x
PM591-ETH	Memory: 4096KB, Ethernet	V2.x
PM572	Memory: 128KB	V2.x
PM573-ETH	Memory: 512KB, Ethernet	V2.x
PM583-ETH	Memory: 1MB, Ethernet	V2.x
PM585-ETH	Memory: 1024KB, Ethernet	V2.x
PM592-ETH	Memory: 4MB, Ethernet	V2.x
PM5630-2ETH	Memory: 8MB, 2x Ethernet	V3.x
PM5650-2ETH	Memory: 80MB, 2x Ethernet	V3.x
PM5670-2ETH	Memory: 160MB, 2x Ethernet	V3.x
PM5675-2ETH	Memory: 160MB, 2x Ethernet, 8GB Flash	V3.x

I/O-Modules

DC551- CS31	Decentralize I/O-Station with CS31 Interface	V3.x
CI501-PNIO, CI502-PNIO	Decentralize I/O-Station with PROFINET	V3.x
CI504-PNIO, CI506-PNIO	Decentralize I/O-Station with PROFINET	V3.x
CI511-ETHCAT, CI512-ETHCAT	Decentralize I/O-Station with EtherCAT	V1.x
CI521-MODTCP	Modbus TCP, 4x Analog In and 2xAnalaog Out, 8 x Digital I/O	V3.x
CI522-MODTCP	Modbus TCP, 8x Digital Configurable I/O, 8x Digital I/O	V3.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-CS31	8xDigital In, 4xAnalog In, 2xAnalog Out, 8xConfigurable digital I/O	V3.x
AC522	8xConfigurable analog I/O	V3.x
AI523	Analog In	V3.x
AI531	8xConfigurable analog In	V3.x
AO523	Analog Out	V3.x
AX521	4xAnalog I/O	V3.x
AX522	8xAnalog I/O	V3.x
CD522	2xEncoder In, 2xPWM Out, 8xConfigurable digital I/O	V3.x
DA501	16xDI, 8xConfigurable I/O, 4xAI, 2xAO	V3.x
DC522	16x Configurable Digital I/O	V3.x
DC523	24x Configurable Digital I/O	V3.x
DO524	32x Digital Outputs	V3.x
DO526	8x Digital Transistor Output	V3.x
DC532	Digital Inputs, Digital I/O	V3.x
DC541-CM	Digital Inputs, Digital I/O	V1.x
DI524	32x Digital Inputs	V3.x
DX522	Digital Inputs, Relays Outputs	V3.x
DX531	Digital Inputs 230V, Relay Outputs	V3.x
PD501-4CH	Positioning module; analog inputs; 24VDC-Motor outputs	V3.x

Terminal Units

TU509, TU510	Terminal Units for PROFIBUS modules	n/a
TU515, TU516	Terminal Units for I/O modules	n/a
TU517, TU518	Terminal Units for CANopen or DeviceNet modules	n/a
TU520-ETH	Terminal Units for PROFINET modules	n/a
TU531, TU532	Terminal Units for I/O modules	n/a
TU541, TU542	Terminal Units for PD501, DO526	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

Terminal Bases

TB511-ETH, TB511-ARCNET	1x coupler slot	n/a
TB521-ETH, TB521-ARCNET	2x coupler slot	n/a
TB541-ETH	4x coupler slot	n/a
TB5600-2ETH	0x communication module slot	n/a
TB5610-2ETH	1x communication module slot	n/a
TB5620-2ETH	2x communication module slot	n/a

Communication Couplers

CM574-RS	RS232, RS485(Modbus, ASCII)	V2.x
CM579-PNIO	PROFINET RT	V2.x
CM579-ETHCAT	EtherCAT	V2.x
CM588-CN	CANopen	V1.x
CM589-PNIO, PN589-PNIO-4	PROFINET I/O RT	V1.x

Accessories

MC502	Memory Card	n/a
TA524	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

For C0 version:

- 3ADR010079, 2, en_US dated 2018-05-04; 3ADR010053, 3, en_US dated 2018-05-16
- 3ADR010080, 2, en_US dated 2018-05-04
- 1SAP100001F0001 and 1SAP200002B0001 dated 12.08.2016; 1SAP100021F0001 dated 2016-09-13

For C1 version:

- 3ADR010003, 3, en_US, 3ADR010004, 3, en_US and 3ADR010022, 3, en_US dated 2018/11/12
- 3ADR010042, 3, en_US, 3ADR010043, 3, en_US and 3ADR010052, 3, en_US dated 2018/11/12
- 3ADR010044, 4, en_US, 3ADR010071, 4, en_US and 3ADR010074, 4, en_US dated 2019/06/28
- 3ADR010047, 3, en_US and 3ADR010064, 3, en_US dated 2018/11/12
- 1SAP221310F9202 dated 02.02.2016; 1SAP220620F0002 dated october 20,2008
- 1SAP200001F00001dated 12.08.16; 1SAP222130F9102 dated 24.10.11; 1SAP172911F9202 dated 07.07.2015
- 1SAP172910F0101 dated 07.07.2015; 1SAP106608 dated 27.05.2004; SAP240110F9105 dated 23.07.18
- 1SAP240110F0403 dated 09.04.2018; 1SAP240110F9005 dated 23.07.2018; 1SAP240110F0005 dated 09.04.2018
- 1SAP240011F9207 dated 08.08.2017; 1SAP240010F0207 dated 09.04.2018; 1SAP240710F9002 dated 09.08.2018
- 1SAP240710F0102 dated 09.04.2018; 1SAP140121B0100 dated 06.08.09; 1SAP150110F0202 dated 27-01-2011
- 1SAP100001F0001 dated 12.08.2016; 1SAP212010F9004 dated 05.05.2017; 1SAP212010F0004 dated 04.05.2017
- 1SAP213210F9002 dated 09.05.2017; 1SAP213210F0002 dated 11.05.2017; 1SAP100022F0001 dated 2016-11-16
- 1SAP217010F9003 dated 15.06.2018; 1SAP21701F003 dated 06.12.2017

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

For C0 version:

- Paconsult GmbH: 18-10585 Rev. 2 dated Sept. 17, 2018
 - EMV Rhein-Neckar GmbH: 3893-3127 and 3893-3128 dated 06.11.2018
 - ABB: D2016005 dated 2016-07-06; D2016007 dated 2016-07-30; D2017005 dated 2017-10-23

For C1 version:

- Paconsult GmbH: 18-11059 Rev.1 dated January 23, 2019
 - EMV Rhein-Neckar GmbH: 3893-3131 dated 03.04.2019; 3893-3132 dated 17.07.2019; 3893-3136 dated 22.07.2019; 3893-3137 dated 26.07.2019

For C2 version:

- EMV Rhein-Neckar GmbH: 3893-3132a dated 19.09.2019; 3893-3137a dated 19.09.2019; 3893-3138a dated 19.09.2019; 3893-3139 dated 19.09.2019
 - Nemko: FS-2109-450318-007 dated 26.11.2021; FS-2109-450318-009 dated 26.11.2021; FS-2109-450318-010 dated 26.11.2021; FS-2109-450318-011 dated 26.11.2021; FS-2109-450318-012 dated 26.11.2021

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, PM5630, PM5650, PM5670, PM5675, TB5600, TB5610, TB5620, DO526, TU542, PM585-ETH, CI521-MODTCP, CI522-MODTCP, DC522, DC523, DC532, DI524, DO524, CM589, CM589-PNIO-4

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 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev7.

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

4.9 - In accordance with IACS UR E22 and as applicable to programmable devices for computer based systems of Category II or III, for each ship application:

- Ship specific documentation is to be submitted including software documentation and categorization of the computer based system.

- Inspection and testing before installation onboard is to be performed under the surveillance of the Society.

4.10 - 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.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The above mentioned components are to be supplied by **ABB AG** 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 and as such does not require a BV product certificate.

5.3 - **ABB AG** 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

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 - It is the responsibility of **ABB AG** to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This certificate supersedes the Type Approval Certificate N° 31009/C1 BV issued on 06 Aug 2020 by the Society.

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