

Type Approval Certificate



[Programmable Logic Controllers]

Initial Approval 26 November 2018
Manufacturer ABB AG
 Eppelheimer Str. 82, DE-69123 Heidelberg, Germany

Product Description Type : AC500-eCo / S500-eCo

* Manufacturing place
 - Welco Technology (Shenzhen) Ltd.
 Wanfeng Industrial Estate, 34 The East of Wangzhang Pu, Shajing,
 Baoan, Shenzhen, Guangdong, P.R. China

" See Appendix 1 "

Approval Condition " See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt. 6, Ch. 2, Art. 301 of the Rules for Classification, Steel Ships.

This Certificate is valid until 25 November 2028

Issued at Busan, Korea on 4 January 2024



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No(ME24000002772) and certificate No.(HMB39370-AC001).



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*General Manager of
Marine & Ocean Equipment Team*

Note : 1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
 2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
 3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
 4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Product Description and/or Approval Condition

Date of Issue : 4 January 2024

A. Product Description

1. Product Specification

1) System Description (Programmable Logic Controllers, Type : AC500-eCo / S500-eCo)

Type	Description
CPU (AC500-eCo)	
PM554-RP	128 kB memory, 8 DI/6 DO-R, 24 V DC
PM554-RP-AC	128 kB memory, 8 DI/6 DO-R, 100-240
PM554-TP	128 kB memory, 8 DI/6 DO-T, 24 V DC
PM554-TP-ETH	128 kB memory, 8 DI/6 DO-T, 24 V DC, Ethernet interface
PM556-TP-ETH	512 kB memory, 8 DI/6 DO-T, 24 V DC, Ethernet interface
PM564-RP	128 kB memory, 6 DI/6 DO-R / 2 AI / 1 AO, 24 V DC
PM564-RP-AC	128 kB memory, 6 DI/6 DO-R / 2 AI / 1 AO, 100-240 V AC
PM564-RP-ETH	128 kB memory, 6 DI/6 DO-R / 2 AI / 1 AO, 24 V DC, Ethernet interface
PM564-RP-ETH-AC	128 kB memory, 6 DI/6 DO-R / 2AI / 1 AO, 100-240 V AC, Ethernet interface
PM564-TP	128 kB memory, 6 DI/6 DO-T / 2 AI / 1 AO, 24 V DC
PM564-TP-ETH	128 kB memory, 6 DI/6 DO-T / 2 AI / 1 AO, 24 V DC
PM566-TP-ETH	512 kB memory, 6 DI/6 DO-T / 2 AI / 1 AO, 24 V DC, Ethernet interface
I/O Modules (S500-eCo)	
AI561	Analog Input Module 4 AI, configurable
AI562	Analog Input Module 2 AI, RTD (resistance temp. detector), configurable
AI563	Analog Input Module 3 AI, RTD (resistance temp. detector), configurable
AO561	Analog Output Module, 1 AO, RTD (resistance temp. detector), configurable
AX561	Analog Input/Output Module, 4 AI, 2 AO (24 V DC), configurable
DC561	Digital Input/Output Module, 16 configurable inputs/outputs, 24 V DC
DC562	Digital Input/Output Module, 16 configurable inputs/outputs, 24 V DC
DI561	Digital Input Module, 8 DI, 24 V DC
DI562	Digital Input Module, 16 DI, 24 V DC
DI571	Digital Input Module, 8 DI, 100-240 V AC
DI572	Digital Input Module, 16 DI, 100-240 V AC
DO561	Digital Output Module, 8 DO, 24 V DC, transistor output
DO562	Digital Output Module, 16 DO, 24 V DC, transistor output
DO571	Digital Output Module, 8 DO, 24 V DC or 100-240V AC, relay output
DO572	Digital Output Module, 8 DO, 240 V AC, triac output
DO573	Digital Output Module, 16 DO, 24 V DC or 100-240V AC, relay output
DX561	Digital Input/Output Module, 8 DI, 8 DO, 24 V DC, transistor output
DX571	Digital Input/Output Module, 8 DI, 8 DO, 24 V DC, relay output
FM562	Positioning module, 4 digitla inputs, 2 per axis, RS-422, 4 DI, 24 V DC
Accessories (AC500-eCo / S500-eCo) etc.	
TA561-RTC	Serial RTC adaptor for PM55x and PM56x CPUs
TA562-RS	Serial RS-485 adaptor for PM55x- and PM56x-CPU
TA562-RS-RTC	Serial RS-485 and Real-time clock adaptor for PM55x- and PM56x-CPU
TA563-9	Terminal blocks, 9 poles, screw connection type
TA563-11	Terminal blocks, 11 poles, screw connection type
TA564-9	Terminal blocks, 9 poles, screw connection type
TA564-11	Terminal blocks, 11 poles, screw connection type
TA565-9	Terminal blocks, 9 poles, spring connection type
TA565-11	Terminal blocks, 11 poles, spring connection type
TA566	Wall Mounting Accessory for AC500-eCo CPU and S500-eCo I/O
TA570	Spare part set for AC500-eCo CPUs, 3x6 pieces
TA571-SIM	Input Simulator for PM55x- and PM56x-CPU
TK501	Programming cable Sub-D / Sub-D, length 5 m
TK502	Programming cable Sub-D / terminal block, length 5 m
TK503	Programming cable USB -> SUB-D (RS485), length 3 m
TK504	Programming Cable USB -> single conductors, length 3 m
TK506	RS-485 Isolator D-SUB/5-pole terminal
MC503	SD Memory Card expansion module for PM55x-and PM56x-CPU
TA569-RS-ISO	RS-485 adapter for galvanic isolation for PM55x-XP and PM56x-xP

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2) Compass Safety Distance

Type	Standard Compass	Steering Compass
AC500-eCo / S500-eCo	710mm	350mm

2. Approved Drawings and Documents

1) Approved Drawings;

- Mechanical Drawings : 1SAP126601F0001, 1SAP126604F0001, 1SAP126620F0001
1SAP126621F0001
- Schematic Diagram : 1SAP000000F0000, 1SAP120610F0001, 1SAP120620F0001
1SAP120630F0001, 1SAP120730F0001, 1SAP120730F0001
1SAP181410F0001, 1SAP186310F0001, 1SAP230010F0001
1SAP230410F0001, 1SAP230510F0000, 1SAP230510F9000
1SAP230810F0001, 1SAP231210F0001, 1SAP231310F0000
1SAP231410F0001, 1SAP231810F0001, 1SAP231910F0000
1SAP233110F0001, 1SAP235110F0001, 1SAP235120F0001
1SAP235410F0001, 1SAP235910F0001

2) Instruction manual :

AC500 PLC Device Descriptions (Hardware) for AC500 V2 Products, 2017.05.31

3. Test Reports, etc.

1) EMC Test Reports

- No. 2010H_W032 2010.09.25 3893-394f 2009.09.04
- 3893-3124 2017.11.01 071832.191.17 2017.09.21
- C10-133-WT 2010.06.01 SEC12-0456WM-E-E1 2012.11.28
- SEC12-0456WM-E-E2 2012.11.28 SEC13-0728WM-E-E1 2013.10.21
- SEC13-0728WM-E-E2 2013.10.21 SEC13-1473WM-E-E1 2014.04.30
- SEC13-1473WM-E-E2 2014.04.30 SEC13-1475WM-E-E1 2014.04.30
- SEC13-1475WM-E-E2 2014.04.30 SEC15-0182WM-E-E1 2015.05.18
- SEC15-0182WM-E-E2 2015.05.18 FS-2109-450318-012 2021.11.26
- FS-2109-450318-011 2021.11.26 FS-2109-450318-010 2021.11.26
- FS-2109-450318-009 2021.11.26 FS-2109-450318-007 2021.11.26

2) Environmental Test Reports

- 09-2475B-BE-AC500 2009.05.27 12-4737-BE-AC500 2012.10.15
- 16-7720-BE-AC500 2016.03.30 17-9054-BE-AC500-eCo 2017.10.12
- 17-9139-BE-Flammability Test 2017.09.15
- 3893-3130 2019.03.04

3) High Voltage Test Reports

- D2009004 2009.01.29 D2009032 2009.06.25
- D2012014 2012.04.20 D2012055 2012.12.23
- D2013007 2013.09.30 D2013008 2013.11.14
- D2013009 2013.10.29 D2015003 2015.08.05
- D2016008 2016.08.05

B. Approval Condition

1. Application & Limitation

- 1) This approval is granted on the basis of the test reports and the approved documentation.
- 2) Degree of protection is to be complied with Rule Pt.6 Ch.1 Sec.2 201.2. (5).
- 3) The manufacturer is to inform this Society of all kinds of revisions of the equipment. If the changes are recognized to affect functionality of the approved equipment, type test to confirm the reliability of the revised equipment may be performed in the presence of our surveyor.
- 4) When this system is installed in the vicinity of a standard or a steering magnetic compass, it is to have the minimum safe distance stated in Product Description or more at which it may be mounted from such compasses.
- 5) This certificate covers hardware listed under Product specification.
- 6) The products is not to be installed on open decks.

Product Description and/or Approval Condition

Date of Issue : 4 January 2024

2. Individual Product Cert. and Drawing Approval Requirement

- 1) Individual Product Certification is not required.

3. Marking

- 1) The product or packing is to be marked with manufacturer name and type designation on a suitable position.

4. Others

- 1) Test condition (IACS UR E10 Rev.8 basis)

Test	Condition	Remark
EMC	All locations excluding the bridge and deck zone	Refer to Approval Condition B.1.6)
Temperature	0 ~ +70°C	-
Vibration	Acceleration $\pm 0.7g$	-
Salt mist	Not Applied	-
IP Grade	IP 20	-

< End of certificate >

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