



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. A-11887

This is to certify that the
Programmable Electronic System

with type designation(s)
AC500-eCo

Manufactured by
ABB Stotz-Kontakt GmbH
HEIDELBERG NECKAR, Germany


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

Application
Location classes:

Temperature	A
Humidity	B
Vibration	A
EMC	A*
Enclosure	Required protection according to DNV Rules shall be provided upon installation on board.

* See page 3 for more details

Høvik, 2010-09-01
for Det Norske Veritas AS



Odd Magne Nesvåg
Head of Section



DNV local office:
Essen

This Certificate is valid until
2014-06-30



Aleksandra Górowska
Surveyor *Smee*

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.



Certificate No.: A-11887
 File No.: 862.50
 Job Id.: 262.1-007956-2

Product description

ABB AC500-eCo Scalable Programmable Logic Controller with S500 I/O-Modules.

Type	Description
CPU's	
PM554-T	PM554-T:AC500, SPS, 128kB, 8DI/6DO-T, 24VDC
PM554-T-ETH	PM554-T-ETH:AC500, SPS, 128kB, 8DI/6DO-T, ETH
PM554-R	PM554-R:AC500, SPS, 128kB, 8DI/6DO-R, 24VDC
PM554-R-AC	PM554-R-AC:AC500, SPS, 128kB, 8DI/6DOR, VAC
PM564-T	PM564-T:AC500, SPS, 128kB, 6DI/6DO-T/2AI/1AO
PM564-T-ETH	PM564-T-ETH:AC500, SPS, 128kB, 6DI/6DO-T/2AI/1AO
PM564-R	PM564-R:AC500, SPS, 128kB, 6DI/6DO-R/2AI/1AO
PM564-R-ETH	PM564-R-ETH:AC500, SPS, 128kB, 6DI/6DOR/2AI
PM564-R-ETH-AC	PM564-R-ETH-AC:AC500, SPS, 128kB, 6DI/6DO-R
PM564-R-AC	PM564-R-AC:AC500, SPS, 128kB, 6DI/6DO-R/2AI/1AO
I/O-Modules	
DX561	8 isolated DO (24V DC, T), 8DI (24V DC)
DC561	16 isolated DI/DO (24V DC)
DI561	8DI (24V DC)
DO561	8DO (24V DC, T)
AX561	4AI, 2AO (24V DC)
AI561	4AI
AO561	2AO
DI562	2x8 isolated DI (24V DC)
AI562	2AI, RTD (resistance temp. detector), 24V DC
AI563	4 isolated AI, TC (thermocouples), 24V DC
DX571	8DO (120/240V AC, R, 2A), 8DI (24V DC)
DO571	8DO (120/240V AC, R, 2A)
DI571	8DI (120/240V AC)
DO572	8DO
Accessories	
TK503	Programming cable
MC503	SD Memory Card expansion module
TA561-RTC	Real-time clock expansion module
TA562-RS	Serial communication interface COM2
TA562-RS-RTC	Serial communication interface COM2 with real-time clock
TA560-BAT	Lithium battery for real-time clock
TA566	Wall mounting accessory

Place of manufacture

Delta Electronics Taoyuan:

Delta Electronics, Inc.
 Industrial Automation Business Unit
 31-1 Xingbang Road,
 Guishan Industrial Zone,
 Taoyuan County 33370.
 Taiwan

Delta Electronics Wujiang:

Delta Electronics (Jiang Su) LTD.
 215200, No. 1688, Jiangxing East Road,
 Wujiang Economy Development Zone,
 Wujiang City, Jiangsu Province,
 P.R.C.



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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 Pt.4 Ch.9 Control and Monitoring Systems.

Product certificate

Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The certification test is to be performed at the manufacturer of the application system according to an approved test program before the system is shipped to the yard. After the certification the clause for application software control will be put into force.

Clause for application software control

All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV for evaluation and approval. Major changes in the software are to be approved before being installed in the computer.

Application/Limitation

A metal cabinet with maximum slot length between metallic contacts of 45 cm is required.

Type Approval documentation

Test Reports:

- EMV Rhein Neckar GmbH 3893-394f dated 04.09.2009
- ABB High Voltage Test protocol D2009032 dated 28.07.2009
- paconsult 09-2475B dated 06.07.2009
- Ship Approval Test Specification dated 12.05.2009, ver. 1.4
- SITIIS EMC Test Report no.: C10-133-WT for PLC AC500-eCo (PM564-T-ETH and PM564-R-ETH-AC) dated 2010-06-01
- XIAMEN EMC Test Report no.: 2010H_W032 fr PM564-T-ETH & PM564-R-ETH-AC

System description/Installation instructions: 2CDC125080M0201.zip

ABB Automation products 2009 AC500, AC31, CP400, WISA

Overview_ShipApproval_AC500eCo_AC500

Product data sheets: AI561, AI562, AI563, AO561, AX561, DC561, DI571, DI561, DI562, DO561, DO571, DO572, DX561, DX571, PM554_564, PM554 and PM564 with ETH dated 2010-07-09.

Initial Survey Report dated 24.03.2009, DNV Essen.

Tests carried out

Applicable tests according to Standard for Certification No. 2.4, April 2006.

Radiated Emission test for PM564-T-ETH and PM564-R-ETH-AC carried out according to IEC 60945:2002 standard.

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

Retention survey is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE