



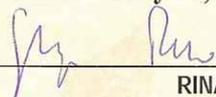
**TYPE APPROVAL CERTIFICATE**  
No. ELE016813XG/002

**This is to certify** that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

<i>Description</i>	<b>Programmable logic controller</b>
<i>Type</i>	<b>AC500 / S500; AC500-XC / S500-XC; AC 700F / S700F; AC500-S / AC500-S-XC</b>
<i>Applicant</i>	<b>ABB - AUTOMATION PRODUCTS GMBH EPPELHEIMER STR. 82 69123 HEIDELBERG GERMANY</b>
<i>Manufacturer</i> <i>Place of manufacture</i>	<b>ABB-STOTZ-KONTAKT GMBH - WERK HORNBERG HAUPTSTR. 14-16 78132 HORNBERG GERMANY</b>
<i>Reference standards</i>	<b>"RINA Rules for the Classification of Ships - Part C, Machinery, Systems and Fire Protection - Chapter 3, Section 6 , table 1"</b>

*Issued in* **Hamburg** on **May 24, 2013**. *This Certificate is valid until* **May 23, 2018**



  
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RINA  
**Giuseppe Russo**

This certificate consists of this page and 1 enclosure

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**AC500 / S500**

**AC500-XC / S500-XC**

**AC 700F / S700F**

**AC500-S / AC500-S-XC**

**CPUs \***

<b>Common features</b>	<ul style="list-style-type: none"> <li>- Two serial configurable interfaces integrated, RS232/RS485 for COM1 (Terminal block 9-pole) and COM2 (D-SUB)</li> <li>- 6 x 7-segments status displays with background lighting</li> <li>- Slot for SC memory Card</li> <li>- Compartment for lithium Battery TA521</li> <li>- Centrally expandable with up to 10 expansion modules</li> <li>- Up to 4 external communication modules</li> </ul>
<b>PM571</b>	Program memory: 64kB
<b>PM571-ETH</b>	Program memory: 64kB; Ethernet coupler integrated (RJ45)
<b>PM572</b>	Program memory: 128kB
<b>PM573-ETH</b>	Program memory: 128kB; Ethernet coupler integrated (RJ45)
<b>PM581</b>	Program memory: 256kB
<b>PM581-ETH</b>	Program memory: 256kB; Ethernet coupler integrated (RJ45)
<b>PM581-ARC</b>	Program memory: 256kB; ARCNET coupler integrated (BNC)
<b>PM582</b>	Program memory: 512kB
<b>PM582-ETH</b>	Program memory: 512kB; Ethernet coupler integrated (RJ45)
<b>PM582-ARC</b>	Program memory: 512kB; ARCNET coupler integrated (BNC)
<b>PM 783F</b>	Program memory: 2MB; Ethernet coupler integrated (RJ45)
<b>PM583-ETH</b>	Program memory: 512kB; Ethernet coupler integrated (RJ45)
<b>PM590</b>	Program memory: 2MB
<b>PM590-ETH</b>	Program memory: 2MB; Ethernet coupler integrated (RJ45)
<b>PM590-ARC</b>	Program memory: 2MB; ARCNET coupler integrated (BNC)
<b>PM591</b>	Program memory: 4MB
<b>PM591-ETH</b>	Program memory: 4MB; Ethernet coupler integrated (RJ45)
<b>PM591-ARC</b>	Program memory: 4MB; ARCNET coupler integrated (BNC)
<b>PM592-ETH</b>	Program memory: 4MB; Ethernet coupler integrated (RJ45)

(\*) ... may be followed by XC (Extreme Condition)

**CPU Terminal Bases (TBs) \***

<b>Common features</b>	<ul style="list-style-type: none"> <li>- Slot for CPU</li> <li>- Slot for Communication Modules (TB511-xxx: 1 slot, TB521-xxx: 2 slots, TB541-xxx: 4 slots)</li> <li>- Interface for FieldBusPlug</li> <li>- Power supply (5-pole terminal block, removable)</li> <li>- Serial interface COM1 (9-pole terminal block, removable)</li> <li>- Serial interface COM2 (9-pole D-SUB, female)</li> <li>- Network interface (Ethernet at TB5xx-ETH or ARCNET at TB5xx-ARCNET)</li> </ul>
<b>TB511-ETH</b>	TB511-ETH: 1 CPU, 1 Communication Module, with networking interface Ethernet RJ45
<b>TB 711-ETH</b>	TB 711-ETH: 1 CPU, 1 Communication Module, with networking interface Ethernet RJ45
<b>TB511-ARC</b>	TB511-ARCNET: 1 CPU, 1 Communication Module, with networking interface ARCNET BNC
<b>TB 711-ARC</b>	TB 711-ARCNET: 1 CPU, 1 Communication Module, with networking interface ARCNET BNC
<b>TB521-ETH</b>	TB521-ETH: 1 CPU, 2 Communication Module, with networking interface Ethernet RJ45
<b>TB521-ARC</b>	TB521-ARCNET: 1 CPU, 2 Communication Module, with networking interface ARCNET BNC
<b>TB541-ETH</b>	TB541-ETH: 1 CPU, 4 Communication Module, with networking interface Ethernet RJ45

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### Communication Interface modules for decentralized I /Os \*

DC505-FBP DC 705F-FBP	FBP Interface Module DC505-FBP / DC 705F-FBP with digital inputs and outputs - With power supply and neutral interface for the FieldBusPlug - 8 digital inputs 24 V DC, 8 configurable digital inputs/outputs - Module-wise electrically isolated
DC551-CS31	CS31Bus Module DC551-CS31 with digital inputs and outputs - 8 digital inputs 24 V DC, 16 configurable digital inputs/outputs - Module-wise electrically isolated
CI590-CS31-HA	High Availability CS31 Bus Module CI590-CS31-HA - 16 configurable digital inputs/outputs 24 V DC - 2 independent CS31 bus interfaces - Module-wise electrically isolated
CI592-CS31	CS31 Bus Modul CJ592-CS31 with digital and analog inputs and outputs - 8 digital inputs 24 V DC - 8 configurable digital inputs/outputs 24 V DC - 4 analog inputs (resolution 12 bits plus sign) - 2 analog outputs (resolution 12 bits plus sign) - CS31 Bus connection - Module-wise electrically isolated
CI501-PNIO	Ethernet Bus Module CI501-PNIO - 4 analog inputs (resolution 12 bits plus sign) - 2 analog outputs (resolution 12 bits plus sign) - 8 digital inputs 24 V DC - 8 digital outputs 24 V DC, 0,5 A max - Module-wise electrically isolated
CI502-PNIO	Ethernet Bus Module CI502-PNIO - 8 digital inputs 24 V DC - 8 digital outputs 24 V DC, 0,5 A max - 8 configurable digital inputs/outputs 24 V DC, 0,5 A max - Module-wise electrically isolated
CI504-PNIO	PROFINET IO Bus Module - 3 Serial UART Interfaces (RS-232, RS-422 or RS-485) - Module-wise electrically isolated
CI506-PNIO	PROFINET IO Bus Module - 2 Serial UART Interfaces (RS-232, RS-422 or RS-485) - 1 CANopen Master Interface - Module-wise electrically isolated
CI511-ETHCAT	Ethernet Bus Module CI511-ETHCAT - 4 analog inputs (resolution 12 bits plus sign) - 2 analog outputs (resolution 12 bits plus sign) - 8 digital inputs 24 V DC - 8 digital outputs 24 V DC, 0,5 A max - Cam switch functionality - Module-wise electrically isolated
CI512-ETHCAT	Ethernet Bus Module CI512-ETHCAT - 8 digital inputs 24 V DC - 8 digital outputs 24 V DC, 0,5 A max - 8 configurable digital inputs/outputs 24 V DC, 0,5 A max - Cam switch functionality - Module-wise electrically isolated
CI541-DP	PROFIBUS DP Bus Module - 4 analog inputs (resolution 12 bits plus sign) - 2 analog outputs (resolution 12 bits plus sign) - 8 digital inputs 24 V DC - 8 digital outputs 24 V DC, 0,5 A max - Module-wise electrically isolated
CI542-DP	PROFIBUS DP Bus Module - 8 digital inputs 24 V DC - 8 digital outputs 24 V DC, 0,5 A max. - 8 configurable digital inputs/outputs 24 V DC, 0,5 A max. - Module-wise electrically isolated

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**Communication Interface modules for decentralized I/Os \***

CI581-CN	CANopen Bus Module - 4 analog inputs (resolution 12 bits plus sign) - 2 analog outputs (resolution 12 bits plus sign) - 8 digital inputs 24 V DC - 8 digital outputs 24 V DC, 0.5 A max - Module-wise electrically isolated
CI582-CN	- 8 digital inputs 24 V DC - 8 digital outputs 24 V DC, 0.5 A max. - 8 configurable digital inputs/outputs 24 V DC, 0.5 A max. - Module-wise electrically isolated

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**Binary I/O modules (S500) \***

DI524, DI 724F	Digital Input Module DI524 / DI 724F - 32 digital inputs 24 V DC - Module-wise electrically isolated
DC532, DC 732F	Digital Input/Output Module DC532 / DC 732F - 16 digital inputs 24 V DC, 16 configurable digital inputs/outputs - Module-wise electrically isolated
DC522, DC 722F	Digital Input/Output Module DC522 / DC 722F - 16 configurable digital inputs/outputs - Module-wise electrically isolated
DC523, DC 723F	Digital Input/Output Module DC523 / DC 723F - 24 configurable digital inputs/outputs - Module-wise electrically isolated
DX522, DX 722F	Digital Input/Output Module DX522 / DX 722F - 8 digital inputs 24 V DC, module-wise electrically isolated - 8 relay outputs
DX531, DX 731F	Digital Input/Output Module DX531 / DX 731F - 8 digital inputs 120/230 V AC, module-wise electrically isolated - 4 relay outputs
DC541	Digital Input/Output Module DC541 - 8 configurable digital inputs/outputs 24 V DC, in a communication module housing - Module-wise electrically isolated
PD501	Positioning Module PD501 - 1 analog input - 24 V DC motor output
PD501- 4CH	Positioning Module PD501-4CH - 4 analog input - 24 V DC motor output

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**Analog I/O modules \***

AO523, AO 723F	Analog Output Module AO523 / AO 723F - 16 configurable analog outputs - Resolution 12 bits plus sign - Module-wise electrically isolated
AI523, AI 723F	Analog Input Module AI523 / AI 723F - 16 configurable analog inputs - Resolution 12 bits plus sign - Module-wise electrically isolated
AI531, AI 731F	Analog Input Module AI531 / AI 731F - 8 configurable analog inputs - Resolution 15bits plus sign - Module-wise electrically isolated
AX521, AX 721F	Analog Input/Output Module AX521 / AX 721F - 4 configurable analog inputs, 4 configurable analog outputs - Resolution 12 bits plus sign - Module-wise electrically isolated
AX522, AX 722F	Analog Input/Output Module AX522 / AX 722F - 8 configurable analog inputs, 8 configurable analog outputs - Resolution 12 bits plus sign - Module-wise electrically isolated
DA501, DA 701F	Input/Output Module DA501 / DA 701F - 16 digital inputs 24 V DC - 8 configurable digital inputs/outputs 24 V DC - 4 analog inputs (resolution 12 bits plus sign) - 2 analog outputs (resolution 12 bits plus sign)
AC522, AC 722F	Analog Output Module AC522 / AC 722F - 8 configurable analog inputs, 8 configurable analog outputs - resolution 12 bits plus sign - module-wise electrically isolated

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**Encoder & PWM module \***

CD522, CD 722F	Encoder & PWM Module CD522 / CD 722F - 2 encoder inputs with 2 integrated 5V power supplies for the encoders - 2 PWM outputs - 2 digital inputs 24 V DC - 8 configurable digital inputs/outputs 24 V DC - Module - wise electrically isolated
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**Communication coupler \***

CM572-DP, CM 772F-DP	CM572-DP / CM 772F-DP Communication module PROFIBUS DP - Master 12 Mbit/s
CM574-RS	CM754-RS Communication Module Serial - Programmable
CM574-RCOM	CM574-RCOM Communication Module RCOM/RCOM+
CM575-DN	CM575-DN Communication Module DeviceNet - DeviceNet Master 500 kbit/s
CM577-ETH	CM577-ETH Communication Module Ethernet - TCP/IP with integrated 2-port switch
CM578-CN	CM578-CN Communication Module CANopen - CANopen Master 1 Mbit/s
CM579- PNIO	CM579-PNIO Communication Module - PROFINET IO Controller - Integrated 2-port switch
CM579 ETHCAT	CM579-EtherCAT Communication Module - EtherCAT master
CM588-CN	Communication Module CANopen - CANopen Slave 1 Mbit/s

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**Terminal units (TUs) \***

TU505 / TU506 TU 705F; TU 706F	FBP Terminal Units TU505-FBP and TU506-FBP for FBP Interface Modules - TU505-FBP, FBP Terminal Unit, Screw-type Terminals - TU506-FBP, FBP Terminal Unit, Spring Terminals
TU507 / TU508	ETH-Terminal Units TU507-ETH and TU508-ETH for PROFINRT- or EtherCAT Bus Modules - TU507-ETH, Ethernet Terminal Unit, Screw-type Terminals - TU508-ETH, Ethernet Terminal Unit, Spring Terminals
TU509 / TU510	Terminal Units for PROFIBUS Bus Modules - TU509-DP, PROFIBUS Bus Terminal Unit, screw-type terminals - TU510-DP, PROFIBUS Bus Terminal Unit, spring terminals
TU515 / TU516 TU 715F; TU 716F	I/O Terminal Units TU515 and TU516 for I/O expansion modules - TU516, I/O Terminal Unit, 24 V DC, Spring Terminals - TU516, I/O Terminal Unit, 24 V DC, Spring Terminals
TU517 / TU518	Terminal Units for CANopen or DeviceNet Modules - TU517-CNDN, CANopen or DeviceNet Terminal Unit, screw-type terminals - TU518-CNDN, CANopen or DeviceNet Terminal Unit, spring terminals
TU520-ETH	PROFINET IO Terminal Unit for PROFINET IO Bus Modules - 2 RJ 45 interfaces for connection to PROFIBUS network, 3 removable connectors for bus systems
TU531 / TU532 TU 731F; TU 732F	I/O Terminal Units TU531 and TU532 for I/O expansion modules - TU531, I/O Terminal Unit, 230 V AC, Screw-type Terminals - TU532, I/O Terminal Unit, 230 V AC, Spring Terminals
TU551 / TU552	Terminal Units TU551-CS31 and TU552-CS31 for CS31 Bus Modules - TU551-CS31, CS31 Bus Terminal Unit, 24 V DC, Screw-type Terminals - TU552-CS31, CS31 Bus Terminal Unit, 24 V DC, Spring Terminals
TU541 / TU542	Terminal Units TU541 and TU542 for Positioning modules PD501 - TU541, Terminal Unit, 24 V DC, Screw-type Terminals - TU542, Terminal Unit, 24 V DC, Spring Terminals

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**Accessory**

TA521	Lithium Battery TA521 - Manganase Dioxide lithium Button Cell, 3 V, 560 mAh - Primery cell, non-rechargeable
TA523	Pluggable Marker Holder TA523 - For labeling the channels of S500 I/Onmodules
TA524	Dummy Communication Module TA524 - To cover an unused communication module slot of a Terminal Base
TA525	Set of 10 white Plastic Markers TA525 - To lable AC500 and S500 modules
TA526	Wall Mounting Accessory TA526 - For insertion at the rear side of Terminal Bases and Terminal Units
TA566	TA566 Wall Mounting Accessory - For wall-Mounting of S500-eCo I/O Modules and PM55x/PM56x CPUs without DIN rail
MC502	SD memory Card MC502 - Secure Digital Card 512 MB - Solid State Flash Memory Storage
TK501, TK701F	Programming Cable TK501 / TK 701F - PC sside: SUB-D, 9-pole, female - AC500 side: SUB-D, 0-pole, male - Length: 5 m
TK502	Programming Cable TK502 - PC side: SUB-D, 9-pole, female - AC500 side: terminal block, 9-pole, female - Length: 5 m:
TK503	TK503 Programming Cable - PC side: USB connector type A - AC500 side: SUB-D, 0-pin, male - Length: 3 m
TK504	TK504 Programming Cable - PC side: USB connector type A - AC500side: 5-pole terminal block - Length: 3 m

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### Safety CPU\*

Type	Description
SM500-S	Safety CPU (Safety Module) for up to SIL3 (IEC 61508 and IEC 62061) and PL e (ISO 13849) safety applications

(\*) my be followed by XC (Extreme Condition)

### Safety I/O modules\*

Type	Description
DI581-S	Safety binary input module DI581-S with 16 safety input channels (up to SIL2 or PL d) or 8 safety input channels (up to SIL3 or PL e) with 8 test pulse output channels
DX581-S	Safety binary input/output module DX581-S with 8 safety output channels and 8 safety input channels (up to SIL2 or PL d) or 4 safety input channels (up to SIL3 or PL e) with 4 test pulse output channels
AI581-S	Safety analog input module AI581-S with 4 safety current input channels 0...20 mA (up to SIL2 or PL d) or 2 safety current input channels (up to SIL3 or PL e)

(\*) my be followed by XC (Extreme Condition)

### Safety Terminal Unit\*

Type	Description
TU582-S	Spring-type terminal unit TU582-S for safety I/O modules

(\*) my be followed by XC (Extreme Condition)

### Software:

(Only relevant for AC500-S Safety products!):

Type PS501; Control Builder Plus V2.2.1 or later (it may be included in Automation Builder software package)

### Technical documents

- Catalogue: 2CDC125080M0201 (2009)
- Drawing No. 1SAP140160F0001, page 1-5
- Drawing No. 1SAP140160F9001
- Documentation CPUs Types PM57x, PM58x and PM59x, page 1 - 14
- Documentation Digital/Analog Input/Output Module DA501, page 1 - 19

### Test reports:

- PACONSULT GmbH report n° 0790-05, 02 June 2005; 1094-05, 27 July 2006; 09-2475B, 06/July /2009; 11-3684, 19.08.2011
- PACONSULT GmbH report n°12-4737, Rev.1
- EMV Rhein-Neckar GmbH report n° 3893-365, 26/06/2006; 3893-392e, 27/06/2009; 3893-385e, 25/04/2009; 3893-390e, 01/06/2009, 3893-388e, 01/06/2009; 3893-386e, 16/05/2009; 3893-384, 14/02/2009
- EMV Rhein-Neckar GmbH, Test Report No.: 3893-399 dated 21.07.2010
- EMV Rhein-Neckar GmbH, Test Report No.: 3893-395a dated 06.11.2009
- EMV Rhein-Neckar GmbH, Test Report No.: 3893-3105, dated 26.09.2011
- EMV Rhein-Neckar GmbH, Test Report No.:3893-3113a dated 19.12.2012
- DAR Test Report No.09-2475B
- Test Protocol No.: D2011042, dated 24.10.2011 (Dielectric Voltage Withstand Test)
- TÜV Süd Certificate No. Z10 13 01 83652 001, dated of 2013-02-01

### Additional Place of Production :

WELCO TECHNOLOGY (SHENZHEN) LTD.  
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*This Certificate annuls and replaces previous certificate No.: ELE016813XG*

Hamburg May 24, 2013



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