Certificate No:
TAA00002RW

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Peripheral Equipment

with type designation(s)
Automation PC 910, 2100, 2200, 3100; Panel PC 2100, 2200, 3100; Automation Panel 9x3, 1000

Issued to
B&R Industrial Automation GmbH
Eggelsberg, Oberösterreich, Austria

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.
Location classes:

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

*** see Application/Limitation**

Issued at **Hamburg** on **2021-07-30**
This Certificate is valid until **2026-07-29**.
DNV local station: **Essen**

Approval Engineer: **Heinz Scheffler**

for **DNV**

Joannis Papanuskas
Head of Section

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

Automation PC 910 (APC910) hardware:

System Unit

- 5PC910.SX01-(X)00 - 1-slot APC910 system unit
- 5PC910.SX02-(X)00 - 2-slot APC910 system unit

(X) represents a customer part no. with customized parameter settings, or designs (colors, lables and prints)

CPU Board

- 5PC900.TS17-(X)04 - Intel Core i7 6820EQ - Quad core - 2.8 GH
- 5PC900.TS77-(X)00 - Intel Core i7 3615EQ - Quad core - 2.3 GH
- 5PC900.TS77-(X)04 - Intel Core i5 3610ME - Quad core - 2.7 GH
- 5PC900.TS77-(X)10 - Intel Core Celeron 1047UE - Dual core - 1.4 GH

Main Memory

- 5MMDDR.XXXX-(X)03 - DDR3 SDRAM
- 5MMDDR.XXXX-(X)04 - DDR4 SDRAM

XXXX represents different main memory sizes

Bus Unit

- 5AC901.BX01-(X)XX - 1-slot APC910 bus unit
- 5AC901.BX02-(X)XX - 2-slot APC910 bus unit

XX represents different slot configurations (PCI, or PCIe)

Heat Sink

- 5AC901.HS00-(X)00 - heat sink active
- 5AC901.HS00-(X)01 - heat sink active QM170/HM170

Fan Kit

- 5AC901.FA01-(X)00 - Fan kit for 1-slot APC910
- 5AC901.FA02-(X)00 - Fan kit for 2-slot APC910

Optional Components

- Interface board
- 5AC901.I485-(X)00 - Interface Card with RS232/422/485
- 5AC901.ICAN-(X)00 - Interface Card with CAN
- 5AC901.IETH-(X)00 - Interface Card with Ethernet
- 5AC901.IHDA-(X)00 - Interface Card with Audio Interface
- 5AC901.IPLK-(X)00 - Interface Card with POWERLINK
- 5AC901.ISIO-(X)00 - Interface Card with Relay

Graphic Option

- 5AC901.LSDL-(X)00 - SDL/DVI transmitter

PCI and PCIe Slot Card

- 5ACPCI.ETH1-(X)01 - PCI Ethernet Card 10/100
- 5ACPCE.ETH1-(X)00 - PCIe Ethernet Card 10/100/1000

Data Storage

- 5AC901.CSSD-(X)XX - Slide-In-SSD memory (various types / sizes)

XX represents different memory sizes and different card manufactures

- 5CFAST.XXXX-XX - Representing Cfast cards (various types / sizes)

XXXX represents different memory sizes - XX represents different card manufacturers

Slide-In

- 5AC901.SSAC-(X)00 - Slide-In SIC Adapter
- 5AC901.SDVW-(X)00 - Slide-In DVD-R/RW-drive (service only)

Front Flap

- 5AC901.FF01-(X)00 - Front Flap for 1-slot APC910
- 5AC901.FF02-(X)00 - Front Flap for 2-slot APC910

Accessory

- 0TB103.XX - 24V power connector

XX represents possible screw and clamp options

Technology Guard

- 0TG1000.XX - Technology Guard USB-dongle

XX represents various types of dongles

Automation PC 2100 (APC2100) hardware:

System Unit

- 5APC2100.BY44-000 - Quad Core processor E3845 and 4GB DDR3 RAM
- 5APC2100.BY48-000 - Quad Core processor E3845 and 8GB DDR3 RAM

Interface board

- 5ACCIF01.FPLS-XXX - Interface Board with POWERLINK and RS232
- 5ACCIF01.FPSC-XXX - Interface Board with POWERLINK, CAN and RS232
- 5ACCIF01.FPCC-XXX - Interface Board with POWERLINK, X2X and 2x CAN
- 5ACCIF01.FPCS-XXX - Interface Board with POWERLINK, CAN and RS485

XXX representing different RAM options (FRAM, SRAM)

Link Transmitter

- 5ACCLI01.SDL0-000 - Link Transmitter with SDL Port

Data Storage

- 5CFAST.XXXX-XX - Representing Cfast cards (various types / sizes)

XXXX represents different memory sizes - XX represents different card manufacturers

Front flap

- 5ACCFF00.0000-XXX - Front Cover

XXX represents different door colors and –prints

Accessory

- 0TB1210.3100 - 10 pin terminal block
- 0TB103.XX - 24V power connector

XX represents possible screw and clamp options

Technology Guard

- 0TG1000.XX - Technology Guard USB-dongle

XX represents various types of dongles

Automation PC 2200 (APC2200) hardware:

System Unit

- 5APC2200.AL18-000 - Quad Core Intel Atom E3940 1.60 GHz and 8GB SDRAM

Interface board

- 5ACCIF01.FPLS-XXX - Interface Board with POWERLINK and RS232
- 5ACCIF01.FPSC-XXX - Interface Board with POWERLINK, CAN and RS232
- 5ACCIF01.FPCC-XXX - Interface Board with POWERLINK, X2X and 2x CAN
- 5ACCIF01.FPCS-XXX - Interface Board with POWERLINK, CAN and RS485
- 5ACCIF01.FSS0-XXX - Interface Board with RS422 and RS485

XXX representing different RAM options (FRAM, SRAM)

Link Transmitter

- 5ACCLI01.SDL0-000 - Link Transmitter with SDL Port

Data Storage

- 5CFAST.XXXX-XX - Representing Cfast cards (various types / sizes)

XXXX represents different memory sizes - XX represents different card manufacturers

Front Cover & Label

- 5ACCFF03.0000-XXX - Front Cover
- 5ACCST00.0000-XXX - Product Label

XXX represents different door colors, labels and –prints

Battery Compartment

- 5ACCBT01.0000-XXX - battery tray

XXX represents different door colors and –prints

Accessory

- 0TB1210.3100 - 10 pin terminal block
- 0TB103.XX - 24V power connector

XX represents possible screw and clamp options

Technology Guard

- 0TG1000.XX - Technology Guard USB-dongle

XX represents various types of dongles

Automation PC 3100 (APC3100) hardware:

System Unit
- 5APC3100.KBU0-000 - Dual Core Intel Celeron 3956U 2.2 GHz
- 5APC3100.KBU3-000 - Dual Core Intel Core i7 7600U 2.8 GHz

Main Memory
- 5MMDDR.XXXX-04 - DDR4 SDRAM

XXXX represents different main memory sizes

Interface board
- 5AC901.I485-(X)00 - Interface Card with RS232/422/485
- 5AC901.ICAN-(X)00 - Interface Card with CAN
- 5AC901.IETH-(X)00 - Interface Card with Ethernet
- 5AC901.IHDA-(X)00 - Interface Card with Audio Interface
- 5AC901.IPLK-(X)00 - Interface Card with POWERLINK
- 5AC901.ISIO-(X)00 - Interface Card with Relay

(X) represents a customer part no. with customized parameter settings

Graphic Option
- 5ACCLI02.SDL0-000 - optional SDL graphic interface

Data Storage
- 5CFAST.XXXX-XX - Representing Cfast cards (various types / sizes)

XXXX represents different memory sizes - XX represents different card manufacturers

Front and Key Cover
- 5ACCFF01.0000-XXX - Front Cover
- 5ACCBC01.0000-XXX - Key Cover

XXX represents different door colors, labels and –prints

Accessory
- 0TB103.XX - 24V power connector

XX represents possible screw and clamp options

Technology Guard
- 0TG1000.XX - Technology Guard USB-dongle

XX represents various types of dongles

Automation Panel 9x3 and Automation Panel 1000 (AP9x3, AP1000) hardware:

Display Unit
- 5AP923.1505-00 or (X)XX - 15'' XGA display unit with resistive touch screen
- 5AP933.240C-00 or (X)XX - 24'' FHD display unit with projected capacitive touch screen
- 5AP1120.1906-000 or XXX - 19'' SXGA display unit with resistive touch screen
- 5AP1130.101E-000 or XXX - 10,1'' WXGA display unit with projected capacitive touch screen
- 5AP1130.156C-000 or XXX - 15,6'' FHD display unit with projected capacitive touch screen
- 5AP1130.185C-000 or XXX - 18,5'' FHD display unit with projected capacitive touch screen

(X)XX and XXX represent customer specific versions with different colors, labels, or decorative sheets

Display Link
- 5DLSDL.1001-00 - Display Link with SDL Port

Display Cable
- 5CASDL.0XXX-00 - SDL cable for fixed installation
- 5CASDL.0XXX-03 - SDL cable for flexible installation

0XXX represents various cable lengths, max. 25 m

Accessory
- 0TB103.XX - 24V power connector

XX represents possible screw and clamp options

Panel PC 2100 (PPC2100) hardware:

System Unit
- 5PPC2100.BY44-000 - Quad Core processor E3845 and 4GB DDR3 RAM
- 5PPC2100.BY48-000 - Quad Core processor E3845 and 8GB DDR3 RAM

Interface board
- 5ACCIF01.FPLS-XXX - Interface Board with POWERLINK and RS232
- 5ACCIF01.FPSC-XXX - Interface Board with POWERLINK, CAN and RS232
- 5ACCIF01.FPCC-XXX - Interface Board with POWERLINK, X2X and 2x CAN
- 5ACCIF01.FPCS-XXX - Interface Board with POWERLINK, CAN and RS485

XXX representing different RAM options (FRAM, SRAM)

Display Unit
- 5AP923.1505-00 or (X)XX - 15'' XGA display unit with resistive touch screen
- 5AP933.240C-00 or (X)XX - 24'' FHD display unit with projected capacitive touch screen
- 5AP1120.1906-000 or XXX - 19'' SXGA display unit with resistive touch screen
- 5AP1130.101E-000 or XXX - 10,1'' WXGA display unit with projected capacitive touch screen
- 5AP1130.156C-000 or XXX - 15,6'' FHD display unit with projected capacitive touch screen
- 5AP1130.185C-000 or XXX - 18,5'' FHD display unit with projected capacitive touch screen

(X)XX and XXX represent customer specific versions with different colors, labels, or decorative sheets

Data Storage
- 5CFAST.XXXX-XX - Representing Cfast cards (various types / sizes)

XXXX represents different memory sizes - XX represents different card manufacturers

Accessory
- 0TB1210.3100 - 10 pin terminal block
- 0TB103.XX - 24V power connector

XX represents possible screw and clamp options

Technology Guard
- 0TG1000.XX - Technology Guard USB-dongle

XX represents various types of dongles

Panel PC 2200 (PPC2200) hardware:

System Unit
- 5PPC2200.AL18-000 - Quad Core Intel Atom E3940 1.60 GHz and 8GB SDRAM

Interface board
- 5ACCIF01.FPLS-XXX - Interface Board with POWERLINK and RS232
- 5ACCIF01.FPSC-XXX - Interface Board with POWERLINK, CAN and RS232
- 5ACCIF01.FPCC-XXX - Interface Board with POWERLINK, X2X and 2x CAN
- 5ACCIF01.FPCS-XXX - Interface Board with POWERLINK, CAN and RS485
- 5ACCIF01.FSS0-XXX - Interface Board with RS422 and RS485

XXX representing different RAM options (FRAM, SRAM)

Display Unit
- 5AP923.1505-00 or (X)XX - 15'' XGA display unit with resistive touch screen
- 5AP933.240C-00 or (X)XX - 24'' FHD display unit with projected capacitive touch screen
- 5AP1120.1906-000 or XXX - 19'' SXGA display unit with resistive touch screen
- 5AP1130.101E-000 or XXX - 10,1'' WXGA display unit with projected capacitive touch screen
- 5AP1130.156C-000 or XXX - 15,6'' FHD display unit with projected capacitive touch screen
- 5AP1130.185C-000 or XXX - 18,5'' FHD display unit with projected capacitive touch screen

(X)XX and XXX represent customer specific versions with different colors, labels, or decorative sheets

Data Storage
- 5CFAST.XXXX-XX - Representing Cfast cards (various types / sizes)

XXXX represents different memory sizes - XX represents different card manufacturers

Battery Compartment
- 5ACCBT01.0000-XXX - battery tray

XXX represents different door colors and –prints

Accessory
- 0TB1210.3100 - 10 pin terminal block
- 0TB103.XX - 24V power connector

XX represents possible screw and clamp options

Technology Guard
- 0TG1000.XX - Technology Guard USB-dongle

XX represents various types of dongles

Panel PC 3100 (PPC3100) hardware:

System Unit

- 5PPC3100.KBU0-000 - Dual Core Intel Celeron 3956U 2.2 GHz
- 5PPC3100.KBU3-000 - Dual Core Intel Core i7 7600U 2.8 GHz

Main Memory

- 5MMDDR.XXXX-04 - DDR4 SDRAM

XXXX represents different main memory sizes

Interface board

- 5AC901.I485-(X)00 - Interface Card with RS232/422/485
- 5AC901.ICAN-(X)00 - Interface Card with CAN
- 5AC901.IETH-(X)00 - Interface Card with Ethernet
- 5AC901.IHDA-(X)00 - Interface Card with Audio Interface
- 5AC901.IPLK-(X)X00 - Interface Card with POWERLINK
- 5AC901.ISIO-(X)00 - Interface Card with Relay

(X) represents a customer part no. with customized parameter settings.

Display Unit

- 5AP923.1505-00 or (X)XX - 15'' XGA display unit with resistive touch screen
- 5AP933.240C-00 or (X)XX - 24'' FHD display unit with projected capacitive touch screen
- 5AP1120.1906-000 or XXX - 19'' SXGA display unit with resistive touch screen
- 5AP1130.101E-000 or XXX - 10,1'' WXGA display unit with projected capacitive touch screen
- 5AP1130.156C-000 or XXX - 15,6'' FHD display unit with projected capacitive touch screen
- 5AP1130.185C-000 or XXX - 18,5'' FHD display unit with projected capacitive touch screen

(X)XX and XXX represent customer specific versions with different colors, labels, or decorative sheets

Graphic Option

- 5ACCLI02.SDL0-000 - optional SDL graphic interface

Data Storage

- 5CFAST.XXXX-XX - Representing Cfast cards (various types / sizes)

XXXX represents different memory sizes - XX represents different card manufacturers

Key and Side Cover

- 5ACCBC02.0000-XXX - Key Cover
- 5ACCFF02.0000-XXX - Side Cover

XXX represents different door colors, lables and –prints

Accessory

- 0TB103.XX - 24V power connector

XX represents possible screw and clamp options

Technology Guard

- 0TG1000.XX - Technology Guard USB-dongle

XX represents various types of dongles

Application/Limitation

Location class EMC B: On the DC-power supply the Line Filter 5AC804.MFLT-(X)00 must be used for following product families:

- APC910
- AP9x3
- AP1000

Location class Vibration A:

- APC910 with the System Unit 5PC910.SX01-00 must be mounted using the vibration-damping unit (5ACCDM90.0001-000)
- APC2200 must be installed using the side mounting plate (Box-Style) according to the user's manual.

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, 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 GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Product certificate

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After the certification the clause for application software control will be put into force.

Type Approval documentation

Test Reports:

- List Test Reports, Version 1

Documents:

- User's manuals MAAPC3100-ENG V2.10; MAPPC3100-ENG V2.05; MAPPC2200-ENG V1.10; MAPPC2100SW1-ENG V2.00; MAAPC2100-ENG V1.25; MAAPC900(APC910)-ENG_V2.11; MAAP9x3-ENG V1.26; MAAP1000-ENG V2.00
- Device Number Keys APC3100 Device Number Key V3; PPC3100 Device Number Key V5; PPC2200_AP9x_AP1000 Device Number Key V2; PPC2100_AP9x3_AP1000 Device Number Key V6.0; APC2100 Device Number Key V5; APC910 Device Number Key V6

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, December 2019
IACS E10 Rev.7 Oct 2018; IEC 60945:2002/COR1: 2008, Section 9.2/9.3; 10.3-10.9; 11.2.

Marking of product

The products to be marked with:

- Model name
- Manufacturer name
- Serial number

Periodical assessment

The scope of the periodical assessment 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 assessment 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

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE