



Marine &amp; Offshore

Certificate number: 22044/C1 BV

File number: AP3845

Product code: 4482H

*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*  
**SIEMENS AG - DF FA AS**  
 Amberg - GERMANY

*for the type of product*  
**MARITIME PERSONAL COMPUTERS**  
 SIMATIC Microbox PC 427B,  
 HMI IPC 427C, IPC 427D, IPC 477C, IPC 477D

### Requirements:

Bureau Veritas Rules for the Classification of Steel Ships  
 EC Code: 31

*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: 07 Jun 2023**

**For Bureau Veritas Marine & Offshore,**  
 At BV HAMBURG, on 14 Jan 2019,  
 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 4 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION:

The **SIMATIC Microbox PC 427B, 427B-RTS; SIMATIC IPC 427C, 427C-Bundle, 427D** and **SIMATIC HMI IPC 477C, 477D** series are devices and panels for industrial personal computers.

#### **1.1 - Main Specifications:**

Power supply: 24V DC

Protection Index: IP20 for devices and panels, IP54 or IP65 for front side of panels

#### **1.2 - Characteristics:**

##### **SIMATIC Microbox PC 427B:**

Installation on DIN rail, wall mounting, hanging assembly

- Type: **6ES7 647-7A a b 0 - 0 c d 0**

**a = Processor:** A; B; D; E; F; J; K

**b = Memory:** 1; 2; 3; 4

**c = Drive:** X; M; N; P; Q; R; F; G; H

**d = Operating system:** X; A

- Type: **6ES7 654-0UC11-0XX0**

(Identical to 6ES7 647-7AK30-0QA0) for SIMATIC PCS7

##### **SIMATIC Microbox PC 427B-RTX:**

Installation on DIN rail, wall mounting, hanging assembly

- Type: **6ES7 675-1C aa 0 - 0 b c 0**

**aa = Processor:** B2; F3; K3

**b = Memory:** A; C; D

**c = Operating system and Software:** A; B; C; D; E; F; G; H

##### **SIMATIC IPC 427C:**

Installation on DIN rail, wall mounting, hanging assembly

- Type: **6ES7 647-7B a b c - d e f 0**

**a = Processor:** A; B; D; E; F; G; J; K; L

**b = Memory:** 1; 2; 3; 4

**c = Extension:** 0; 1

**d = Drive changeable:** 0; 1; 2; 3; 4

**e = Drive internal:** D; E; F; M; N; P; Q; R; X

**f = Operating system:** A; B; C; D; M; N; X

##### **SIMATIC IPC 427C-Bundle:**

Installation on DIN rail, wall mounting, hanging assembly

- Type: **6ES7 675-1D a b 0 - c d e 0**

**a = Processor:** A; B; E; F; G; J; K; L

**b = Memory:** 2; 3; 4

**c = Drive internal:** 0; 2; 3; 6; 7; 8

**d = Drive changeable:** A; D; E; F

**e = Operating system:** A - F; K - N; P; R - U

- Type: **6ES7 650-0RG\_\_-0YX1**

PCS 7 OS Client SSD, ("\_" acc. software version)

- Type: **6ES7 654-0UE2\_-0XX0**

PCS 7 AS RTX with Flash Card, ("\_" acc. software version)

##### **SIMATIC IPC 427D**

Wall mounting

- Type: **6AG4 140- a D b c d - e f g h**

**a = Processor:** 0; 1; 2; 3; 4; 5; 6; 7; 8

**b = Main Memory:** A; B; C; D; G; H; J; K; L; M; N; P

**c = Extension (HW):** 0; 1; 2; 3; 4; 5

**d = Operating system:** not relevant

**e = Drive changeable:** 0; 1; 2; 3; 4

**f = Drive internal:** A; B; C; D; E; G; H; P

**g = Software:** not relevant

**h = Power supply / with TPM:** 0; 8

- Type: **6ES7 650-0U b \_\_-0YX1**

PCS 7 OS Client SSD, ("\_" acc. software version)

**b = Main Memory:** A; B; C; D; G; H; J; K; L; M; N; P

##### **SIMATIC HMI IPC 477C:**

Vertical installation in a cut-out of a cabinet or rack

- Type: **6AV7 884- a b c d e - f g h 0**

**a = Front panel:** 0; 1; 2; 3; 5

**b = Front design:** A; Y

**c = Processor:** A; B; D; E; F; G; H; J

**d = Memory:** 1; 2; 3

**e = Second mass storage:** 0; 2; 3; 4; 5; 6; 7; 8

**f = First mass storage:** 0; 2; 3; 4; 5; 7; 8

**g = Operating system:** A; B; D; E; G

**h = Bundles:** A; B; C; D; E; F; K; L; M; N; P; R; S; T; U; X; W

##### **SIMATIC HMI IPC 477D:**

Vertical installation in a cut-out of a cabinet or rack

- Type: **6AV7240 - a b c d e - f g h i j**

**a = Processor:** 0; 1; 3; 4; 5; 6; 7; 8

**b = Front panel:** M; N; P

**c = Memory:** A; B; C; D; J; K; L; M

**d = Extension (HW):** 0; 3

**e = Operating system:** not relevant

**f = Second mass storage:** 0; 1; 2; 3; 4

**g = First mass storage:** A; B; C; D; E; H; N; Q

**h = Software:** not relevant

**i = Power supply / with TPM:** 0; 8

### 2. DOCUMENTS AND DRAWINGS:

- A5E00913638-01 dated 04/2007; A5E02368070-01 dated 05/2009; A5E02414743-01 dated 04/2009

- A5E31347215-AA dated 01/2013; A5E31347228-AD dated 07/2015

- Ordercode configurator Rev. V56 dated 16.03.2012

**3. TEST REPORTS:**

Siemens AG: - 2015-06 dated 10.12.2015; 2013-01 dated 26.07.2013; 07/07 dated 23-07-2007  
 - 07-E003148-BM-A01 dated 10/07/2007; 07-E003148-BM-B01 dated 17/08/2007; 2781\_00\_2007E01 dated 16/01/2007  
 - 09-E003928-BM-K01 dated 2009/06/10; K003306\_02\_2009\_E\_A01 dated 04/03/09; 2008-K533-EMC-05 dated 19.03.2009  
 - 09-E003928-BM-I01 dated 2009/07/14; 09-E003925-BM-A01 dated 2009/08/18; K003322\_04\_2009\_E\_A01 dated 07/01/09  
 - 2008-K536-EMC-01 dated 22.04.2009  
 BSH: - Certificate No.: 810 dated 7. June 2013

**4. APPLICATION / LIMITATION:**

- 4.1 - Bureau Veritas Rules and Regulations 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 - This certificate covers hardware only, excluding SIMATIC IPC BIOS versions and optional operating systems and software packages.  
 4.5 - The equipment SIMATIC PC 427B and 427B-RTX fulfil the EMC requirements for installation in general power distribution zone only.  
 4.6 - The equipment SIMATIC IPC 427C and 477C fulfil the EMC requirements for installation on the Bridge and Deck Zone if filter type Epcos B814113C or equivalent with ratings  $I=3A$ ,  $C=2*0,47\mu F + 2*4700pF$ ,  $L=4*4,7mH$  is used.  
 4.7 - The equipment SIMATIC IPC 427D and 477D fulfil the EMC requirements for installation on the Bridge and Deck Zone if filter type Corcom xFC10 or equivalent is used.  
 4.8 - The minimum safe distance at which the following touch panels may be mounted from a standard or a steering magnetic compass is not to be less than for 6AV7 884-2AH30-6BA0: 1,95m and for 6AV7 884-5AH30-4BA0: 2,4m.  
 4.9 - The minimum safe distance at which the other components may be mounted from a standard or a steering magnetic compass is not to be less than 5 m.  
 4.10 - The devices require surge protection devices on the DC power supplies to withstand overvoltage transients from switching and lightning. Detailed guidance is found in document A5E03461486 dated 06/2014, Chapter 7.3 for lightning protection zone 0A to 1 or 0B, depending on the installation location of the devices.  
 4.11 - Suppliers using the industrial PC's are required to submit documentation for information or approval in dependence of the system category of the application.  
 4.12 - Factory acceptance, simulation, integration and on-board tests are to be performed for Category II or III systems in which the hardware is used to approved test programs.

**5. PRODUCTION SURVEY REQUIREMENTS:**

- 5.1 - The above mentioned products are to be supplied by **SIEMENS AG - DF FA AS** 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 - **SIEMENS AG - DF FA AS** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products:

**SIEMENS AG**  
**Elektronikwerk Karlsruhe**  
**Östliche Rheinbrückenstr. 50**  
**76187 Karlsruhe**  
**GERMANY**

**Siemens Industrial Automation Products Ltd.**  
**No. 99, Tian Yuan Road**  
**Sichuan Province**  
**611731 Chengdu City**  
**CHINA**

**Siemens Industry Inc.**  
**Customer Services Division**  
**4170 Columbia Road**  
**Lebanon 45036-9699, Ohio**  
**USA**

- 5.4 - Equipment is to be supplied with manual(s) for installation, use and maintenance.

**6. MARKING OF PRODUCT:**

- Maker's name or trademark
- Equipment type or model identification
- Date of manufacture and/or serial number

**7. OTHERS:**

7.1 - It is the responsibility of **SIEMENS AG - DF FA AS - GERMANY** 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° 22044/C0 BV issued by the Society on 07 Jun 2018.

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