DNV·GL

Certificate No:
TAA00000GE

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Programmable Controller

with type designation(s)
Fail-Safe Programmable Logical Controller Central Processing Unit CPU410 SIMATIC S7 400 F; S7 400 FH

Issued to
Siemens AG - Process Industries and Drives
Karlsruhe, Germany

is found to comply with
DNV GL rules for classification – Ships

Application :

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

Temperature	**B**
Humidity	**B**
Vibration	**A**
EMC	**A**
Enclosure	**Required protection according to DNVGL Rules**

This Certificate is valid until **2020-04-15**.

Issued at **Hamburg** on **2016-05-31**

for **DNV GL**

DNV GL local station: **Augsburg**

Approval Engineer: **Andrea Grün**

Duy Nam Le
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.

Product description

S7-400 CPU 410-5H: 6ES7410-5H…

Transceiver near: 6ES7960-1AA06-0XA0 and 6ES7960-1AA08-0XA0
Transceiver far: 6ES7960-1AB06-0XA0

Patch Cable: 6ES7960-1AA04-5A… PATCH CABLE 1M, 2M and 10M FOR SYNC-MODULE

PCS 7 SYSTEM EXPANSION CARD: 6ES7653-2C…

CPU 412-3H: 6ES7 412-3HJ14-0AB0, Release 01 or higher

CPU 417-4H: 6ES7 417-4HL04-0AB0, Release 01 or higher
6ES7 417-4HT14-0AB0, Release 01 or higher

CPU 414-4H: 6ES7 414-4HM14-0AB0, Release 01 or higher
6ES7 414-4HJ04-0AB0, Release 01 or higher

CPU 416F-2: 6ES7 416-2FN05-0AB0, Release 01 or higher
6ES7 416-2FK04-0AB0, Release 02 or higher
6ES7416-2FP07-0AB0, Release 01 or higher

CPU 416F-3 PN/DP: 6ES7 416-3FR05-0AB0, Release 01 or higher
6ES7 416-3FS06-0AB0, Release 01 or higher
6ES7416-3FS07-0AB0, Release 01 or higher

CPU 414F-PN/DP: 6ES7 414-3FM06-0AB0, Release 01 or higher Safety-related CPU
6ES7414-3FM07-0AB0, Release 01 or higher Safety-related CPU

CPU 412-5H 6ES7 412-5HK06-0AB0, Release 01 or higher Safety-related CPU
CPU 414-5H 6ES7 414-5HM06-0AB0, Release 01 or higher Safety-related CPU
CPU 416-5H 6ES7 416-5HS06-0AB0, Release 01 or higher Safety-related CPU
CPU 417-5H 6ES7 417-5HT06-0AB0, Release 01 or higher Safety-related CPU

1 CPU 417-4H per Central Controller
Correctness of the F-version Number of the SP7-ASIC is checked by self-test

Tests and evidence according Requirement Class 4 for Safety related CPU's
GL Requirement Class 4 equivalent to requirement class 5 and 6 in DIN V 19250
Safety-Relevant Software Components:
S7 Distributed Safety Programming V5.4 SP4; S7 F Configuration Pack V5.5 SP4, V5.5 SP5
Programming Software: STEP 7 basic package V5.3 + Service Pack 3 or higher
S7 F Systems V6.0; S7 F Systems V5.2 + SPx

Application/Limitation

Using a CPU 410H in common with periphral modules 6ES7421-1BL01-0AA0 / 6ES7422-1BL00-0AA0 feritte type WE 742 715 3, manufactured by Wuerth or equivalent type have to be used.

Type Approval documentation

Test report: 2012-K048_ME_01 dated 24-03-2015; SIMATIC Product Information CPU 410-5H Process Automation A5E32282837-AE and A5E33040434-AD dated 04/15; SIMATIC System Manaual A5E31622159-AA dated 05/2013; P.M270 Declaration CPU 410 V8.x A5E00785405A/022 dated 16-09-2014; Technical descriptions SIMATIC S7-400PA A5E35880888A CPU System Expansion Cards and A5E35880894A HF-Sync Module dated 24-03-2015 CD-ROM CA01Edition 10/99; Software Requirement Class 4; Report No.: 10042360 V1.6 dated 30-06-2005 and 70013560 V1.8; Z10 05 08 20411 002 and Z2 03 04 38282 002 dated 13-11-2008; EMC 04-M060 1279-A1 dated 09-03-2004; A&D AS RD ST Type Test-0606 dated 23-0; SN73321C-A1 Rev. 3.11 dated 2012-04-05
Report No.: SN73331C-A1 Revision 2.16 dated 2012-04-05;
SN73331C-A1 Revision 2.16 dated 2012-04-05

Tests carried out

Applicable tests according to Class Guidance DNVGL-CG-0339, November 2015.

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
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.
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.

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 a 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 at least every second year and at renewal of this certificate.

END OF CERTIFICATE