



Marine & Offshore

Certificate number: 14291/D0 BV

File number: AP3625

Product code: 4501H

*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*

**HIMA Paul Hildebrandt GmbH**

Brühl - GERMANY

*for the type of product*

**PROGRAMMABLE LOGIC CONTROL UNITS**

HIQuad X System

**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: 18 Jul 2027**

**For Bureau Veritas Marine & Offshore,**

At BV HAMBURG, on 18 Jul 2022,

Adama Diene

***This certificate was created electronically and is valid without signature***



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 **HIMA HIQuad X System** consist of modules for central devices, assembled under 19" technology for safety and control applications.

HIQuad H41X is suitable for automation tasks with a maximum of 28 I/O modules and HIQuad H51X for 256 I/O modules.

#### **1.1 HIMA System racks & modules:**

<b>Designation</b>	<b>Main characteristic</b>
F-CPU 01	HIQuad X CPU Module, Safety-related SIL 3
F-IOP 01	HIQuad X Processing Module. Tasks of I/O processing modules
F-BASE RACK 11	HIQuad X Extension Rack for I/O's, 19-Inch, 12 Slots for I/O+9 for System Modules
F-BASE RACK 01	HIQuad X Base Rack for H51X, 19-Inch, 21 Slots for System Modules
F-BASE RACK 02	HIQuad X Base Rack for H41X, 19-Inch, 16 Slots for I/O+5 for System Modules
K9203A	Rack fan with 3 axial fans, redundant supply, monitoring, voltage monitoring
K9202B	Rack fan with 2 axial fans, otherwise the same as s. a. K9203A
F-COM 01	HIQuad X Communication Module
F3221	16xCh DI, with Protective Separation (ProtecS)
F3224A	4xCh DI (Ex)i, ProtecS. NAMUR or wired mechanical contacts, Open-Circuit monitoring
F3236	16xCh DI (24V), Safety-related SIL 3, Safe Separation (SafeS)
F3237	8xCh DI Safety-related SIL 3, NAMUR. Line Short- (LS), Line Break (LB)
F3238	8xCh DI, (Ex)i, Safety-related SIL 3, prox. switches P+F, NAMUR, LS and LB
F3240	16xCh DI, Safety-related SIL 3, with SafeS. 110 VDC, 127 VAC
F3248	16xCh DI, Safety-related SIL 3, with SafeS. 48 VDC, 48 VAC
F3322	16xCh DO, 500 mA(12W). LS-proof. ProtecS. No Output signal upon Break in L- supply
F3330	8xCh DO, Safety-related SIL 3, 500mA(12W), ESD, ProtecS. NoUBrL-
F3331	8xCh DO, Safety-related SIL 3, 500mA(12W), ESD, ProtecS. NoUBrL-SC and OC.
F3333	4xCh DO, Safety-related SIL 3, 2 A(48W). ESD, ProtecS. NoUBrL-
F3334	4xCh DO, Safety-related SIL 3, 2 A(48W). ESD, ProtecS. NoUBrL- and OC
F3335	4xCh DO, (Ex)i, Safety-related SIL 3, for valves and suppl. transmitters. Current limited
F3349	8xCh DO, Safety-related SIL 3, 500mA (24/48 V). ESD, ProtecS. SC and OC
F3422	8xCh Output Relay. 60 VDC / VAC, SafeS
F3430	4xCh Output Relay. Safety-related SIL 3, 250VAC/110VDC, ESD, ProtecS
F6217	8xCh AI, Safety-related SIL 3, 0/4..20mA, 0..5/10V. ProtecS. 12-bit res., SC, OC
F6706	2xCh AO, 0/4...20mA, outputs electrically separated. ProtecS, As current source or sink

#### **1.2 Mounting rail equipment:**

<b>Designation</b>	<b>Main characteristic</b>
H 4007	1-channel isolation amplifier, with power supply for (Ex) transmitter or (Ex) valves
H 4012	Switching amplifier, safety-related, electrical isolation, wire break and wire short-circuit monitoring.
H 4135A	Relay amplifier in terminal case for safety-related circuits
H 7505	Multifunctional interface converter to build the bus systems
H 7506	Bus terminal

#### **1.3 Power supply current & distribution:**

<b>Designation</b>	<b>Main characteristic</b>
F-PWR 01	HIQuad X Processing Module. Tasks of I/O processing modules
F-PWR 02	HIQuad X Power supply Module
H7034, H7035	Mains Filter (24V), Mains Filter (48V), Surge and burst protection
PS 1000/115/02	Power supply unit, input 115 VAC, output 24 VDC, 40 A
PS 1000/230/01	Power supply unit, input 230 VAC, output 24 VDC, 40 A
K7214	Fusing and current distribution, 120 A, with 18 circuit breaker slots for 24 VDC
F 7133	4xCh Power distribution with fuse monitoring and L- distribution
H 6200A	Analogue isolator/power supply, (Ex)i, HART, safety-related, 2 or 3-wire, 4..20mA

**1.4 System Software**

Product Code	Description	Revision
F-IOP 01	HIQuad X Processing Module	IOP OS V10.24
F-CPU 01	HIQuad X CPU Module	CPU OS V13.2
F-COM 01	HIQuad X COM Module	COM OS V14.12

**2. DOCUMENTS AND DRAWINGS:**

For D0 version:

- Safety Manual HI 803 209 E Rev. 3.00.00; System Manual HI 803 211 E Rev. 2.01.00
- Release Note HI 803 247 E Rev. 1.02.00
- Manuals: HI 803 215 E Rev. 1.00.00; HI 803 219 E Rev. 1.00.00; HI 803 223 E Rev. 1.02.00  
HI 803 225 E Rev. 1.00.00; HI 803 227 E Rev. 1.00.00; HI 800 053 E, Rev. 3.01.00; HI 800 127 E, Rev. 3.01.00
- Data sheets: K9203A; K9202B; F3221; F3224A; F3236; F3237; F3238; F3240; F3248; F3322; F3330; F3331; F3333;  
F3334; F3335; F3349; F3422; F3430; F6217; F6706; F7133;  
H6200A; H4007; H4012; H4135A; H7034; H7035; H7505; H7506

**3. TEST REPORTS:**

- HIMA: P1 EV\_116A dated 2006.03.06; VPS-02-01 dated 26.11.2002; EH 04 101 D dated 29.03.96;  
EH 04 113A dated 17.06.99; EH 04 114 A dated 29.07.97; EH 04 114 A dated 12.12.96;  
EH 04 114 Y dated 02.08.2004; EH 04 114 Y dated 17.05.2004; AMS-04-07 dated 30.06.2004;  
QSE Test Report on F 3334 dated 6.03.96;  
Test Report on F 3322 dated 14.06.96; Test Report on F 7133 dated 8.09.96; Test Report on F 8621A dated 14.08.96.
- TÜV: HB96495C, rev. 1, dated 1 Jun 1995; HB52548C Rev. 3.1 dated 2000-06-20 and Amendment 1 dated 05 Sep. 2000;  
990187410 Rev. 1.0 dated 18.10.2000; MHM-EST-7.70072075a dated 14.05.2004; 968/EZ 129.16/10 dated 2010-11-09
- H4007: EX5 02 11 19183 038 dated 29.11.2002; EX8 02 11 19183 039 dated 29.11.2002;
- H4012: EX5 99 07 19183 029X dated 08.07.1999;
- H6200A: TÜV 04 ATEX 7064 with 1st Suppl. dated 2008-04-25; TÜV 04 ATEX 7065X with 1st Suppl. dated 2008-04-25
- Rhein-Neckar GmbH: 5200-347 dated 14.07.2006; 5200-345e dated 21.12.2005; 5200-313 dated 28.02.2003;  
5200-332 dated 30.06.2004

For D0 version:

- EMV Rhein-Neckar: 5200-3115 dated 30.06.2021
- TÜV SÜD: 713209728 dated 13.04.2021
- HIMA: 2114-00-TQ dated 2021.08.13; 2114-01-TQ dated 2021.08.16; 2114-00-AMS dated 2021.08.13

**4. APPLICATION / LIMITATION:**

- 4.1 - Bureau Veritas Rules 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 - The equipment fulfils the EMC requirements for installation on the bridge and deck zone.
- 4.5 - Mains filters H7034 or H7035 to be used for each application.
- 4.6 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev7.
- 4.7 - In accordance with IACS UR E22 and as applicable to programmable devices for computer based systems of Category II or III, for each ship application:
  - Ship specific documentation is to be submitted including software documentation and categorization of the computer based system.
  - Inspection and testing before installation onboard is to be performed under the surveillance of the Society.
- 4.8 - Ex-certification is not covered by this certificate. Applications in hazardous areas are to be approved in each case according to the Rules and Conditions for Safe Use specified in a valid Ex-Certificate issued by a Notified Body.
- 4.9 - Only Hardware successfully tested in compliance with the regulations as referred to in page one, according to the declaration of the manufacturer are covered by this certificate.

**5. PRODUCTION SURVEY REQUIREMENTS:**

- 5.1 - The above mentioned products are to be supplied by **HIMA Paul Hildebrandt GmbH** 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 Bureau Veritas product certificate.

5.3 - **HIMA Paul Hildebrandt GmbH** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.

**HIMA Paul Hildebrandt GmbH**  
**Albert-Bassermann Strasse 28**  
**68782 Brühl**  
**GERMANY**

**6. MARKING OF PRODUCT:**

- Maker's name or trademark
- Equipment type or model identification
- Date of manufacture and/or serial number
- Ex marking, as relevant

**7. OTHERS:**

7.1 - It is the responsibility of **HIMA Paul Hildebrandt GmbH** 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° 14291/C0 BV issued on 01 Nov 2012 by the Society.

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