



# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAA000011N**  
Revision No:  
**4**

## This is to certify:

**That the Programmable Electronic System**

with type designation(s)  
**HIMA HIMax and Planar4 System**

Issued to  
**HIMA Paul Hildebrandt GmbH**  
**Brühl, Baden-Württemberg, Germany**

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

## Application :

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

## Location classes:

<b>Temperature</b>	<b>B (from 0°C)</b>
<b>Humidity</b>	<b>B</b>
<b>Vibration</b>	<b>A</b>
<b>EMC</b>	<b>B</b>
<b>Enclosure</b>	<b>Required protection according to DNVGL Rules shall be provided upon installation onboard</b>

Issued at **Hamburg** on **2023-06-21**

for **DNV**

This Certificate is valid until **2027-10-21**.

DNV local unit: **Augsburg**

Approval Engineer: **Holger Jansen**

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**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

HIMax is a module based safety system which may be used for safety and critical control applications.

### Hardware:

#### Product Code

#### Description

X-SB 01	HIMax System Bus Module
X-CPU 01	HIMax CPU Module
X-CPU 31	HIMax CPU Module
X-COM 01 XX	HIMax Communication Module (X can be any digit from 1..9)
X-COM 01 E XX	HIMax Communication Module (X can be any digit from 1..9)
X-Base Plate LX YZ	HIMax Base Plate L, X, Y, Z can be any digit from 0..9, for more info see HIMA catalog
X-FAN LX YZ	HIMax Base Plate L, X, Y, Z can be any digit from 0..9, for more info see HIMA catalog
X-DI 16 01	HIMax Digital Input Module (16 Ch. 120 VAC)
X-DI 32 01	HIMax Digital Input Module (32 Ch. 24 VDC)
X-DI 32 01 A	HIMax Digital Input Module (32 Ch. 24 VDC)
X-DI 32 02	HIMax Digital Input Module (32 Ch. 8.2 VDC, proximity switch)
X-DI 32 02 A	HIMax Digital Input Module (32 Ch. 8.2 VDC, proximity switch)
X-DI 32 03	HIMax Digital input Module (32 Ch. 48 VDC)
X-DI 32 04	HIMax Digital input Module (32 Ch. 24 VDC SOE)
X-DI 32 05	HIMax Digital input Module (32 Ch. 8.2 VDC, proximity switch, SOE)
X-DI 64 01	HIMax Digital input Module (64 Ch. 24 VDC)
X-DI 64 01 A	HIMax Digital input Module (64 Ch. 24 VDC)
X-AI 32 01	HIMax Analog Input Module (32 Ch. 4-20 mA)
X-AI 32 01 A	HIMax Analog Input Module (32 Ch. 4-20 mA)
X-AI 32 02	HIMax Analog Input Module (32 Ch. 4-20 mA, SOE)
X-DO 12 01	HIMax Relay Output Module (12 Ch. 230 VAC/DC, current measurement, cycle counting)
X-DO 12 02	HIMax Digital Output Module (12 Ch., 24 VDC, 2 A, short-circuit mon. LS, individual ch. shut-off)
X-DO 24 01	HIMax Digital Output Module (24 Ch., 24 VDC, 0.5 A, line monitoring LS/LB, individual ch. shut-off)
X-DO 24 01 A	HIMax Digital Output Module (24 Ch., 24 VDC, 0.5 A, line monitoring LS/LB, individual ch. shut-off)
X-DO 24 02	HIMax Digital Output Module (24 Ch., 48 VDC, 0.5 A, line monitoring LS/LB, individual ch. shut-off)
X-DO 32 01	HIMax Digital Output Module (32 Ch., 24 VDC, 0.5 A, short-circuit mon. LS, individual ch. shut-off)
X-DO 32 01 A	HIMax Digital Output Module (32 Ch., 24 VDC, 0.5 A, short-circuit mon. LS, individual ch. shut-off)
X-AO 16 01	HIMax Analog Output Module (16 Ch. 0/4-20 mA)
X-CI 24 01	HIMax Counter Input Module (24 Ch. 8.2/24 V, 0..20 kHz ot 0..10 kHz for proximity switches)
H7201	HIMax Feed Line and Distribution Fuse Board
H7202	HIMax Distribution Fuse Board
X-FTA 001 01L	Field Termination Assembly, Single construction, designed for X-DI 32 01, X-DI 32, 03, X-DI 32 04, X-DI 32 51 (32 channels)
X-FTA 001 02L	Field Termination Assembly, Redundant construction, designed for X-DI 32 01, X-DI 32 03, X-DI 32 04 (32 channels)
X-FTA 002 01L 01R	Field Termination Assembly, Single construction, designed for X-DI 32 01, X-DI 32 02, X-DI 32 03, X-DI 32 04, X-DI 32 05, X-DI 32 51, X-DI 32 52, X-AI 32 01, X-AI 32 02, X-AI 32 51, X-AI 16 51, X-CI 24 01, X-CI 24 51, X-DO 32 01, X-DO 32 51, X-DO 24 01, X-DO 24 02, X-AO 16 01, X-AO 16 51 (32 channels)
X-FTA 002 02L 02R	Field Termination Assembly, Redundant construction, designed for X-DI 32 01, X-DI 32 03, X-DI 32 04, X-CI 24 01, X-DO 32 01, X-DO 24 01, X-DO 24 02 (32 channels)
X-FTA 003 02L 02R	Field Termination Assembly, Redundant construction, designed for X-DI 64 01, X-DI 64 51 (64 channels)
X-FTA 005 02L	Field Termination Assembly, Redundant construction, designed for X-DO 12 01, X-DO 12 51 (12 channels)
X-FTA 006 01L	Field Termination Assembly, Single construction, designed for X-DO 12 02 (12 channels)
X-FTA 006 02L	Field Termination Assembly, Redundant construction, designed for X-DO 12 02 (12 channels)
X-FTA 007 02L	Field Termination Assembly, Redundant construction, designed for X-AI 32 01,

X-FTA 008 02L	X-AI 32 02 (32 channels) Field Termination Assembly, Redundant construction, designed for X-DI 32 02, X-DI 32 05 (32 channels)
X-FTA 009 02L	Field Termination Assembly, Redundant construction, designed for X-AO 16 01 (8/16 channels)
X-FTA AI 32 01 01	Field Termination Assembly for X-AI 32 01
X-FTA DI 32 01 01	Field Termination Assembly for X-DI 32 01
X-FTA DI 32 02 01	Field Termination Assembly for X-DI 32 02
X-FTA DO 12 01 01	Field Termination Assembly for X-DO 12 01
X-FTA DO 24 01 01	Field Termination Assembly for X-DO 24 01
X-HART 32 01	HIMax HART Communication Module
X-MIO 7/6 01	HIMax Overspeed Trip Module
H7505 H device	Multifunctional interface converter
H7506 H device	Bus terminal
PS1000 PS series	Power Supply Unit
H 4135A	H device Relay with electronic housing
H 4011	H device Switching Amplifier (Ex)I, SIL 3
H 4012	H device Switching Amplifier (Ex)I, SIL 3
H 4116	H device Relay in electronic housing, SIL 2
H 4007	H device Switching Amplifier (Ex)I SIL1 to SIL4
H 6210	Harting HART multiplexer 8-fold
H 6200A	Harting Analog Repeater Power Supply
90 900	Planar4 Subrack with bus, Connection: pins for soldering
90 901	Planar4 Subrack with bus, Connection: pins for soldering
90 902	Planar4 Subrack with bus, Connection: pins for termi-point / wire-wrap
90 903	Planar4 Subrack with bus, Connection: pins for termi-point / wire-wrap
90 910	Planar4 Subrack with bus, Connection: pins for soldering
90 911	Planar4 Subrack with bus, Connection: pins for soldering
90 912	Planar4 Subrack with bus, Connection: pins for termi-point / wire-wrap
90 100	Planar4 4-fold Fuse Module
90 300	Planar4 Bypass Module
12 100	Planar4 4-fold Input Module, SIL 4/Kat.4
13 110	Planar4 2-fold Input Module (Ex)I, ATEX, SIL 4/Kat.4
22 100	Planar4 4-fold Output Module 25 V =/ 3 W, SIL 4/Kat.4
22 120	Planar4 Output Module 25 V=/ 24 W, SIL 4/Kat.4
22 121	Planar4 Output Module 60 V=/ 24 W, SIL 4/Kat.4
32 100	Planar4 2-fold Relay Amplifier, SIL 4/Kat.4, switching voltage 24 V =/~
32 101	Planar4 2-fold Relay Amplifier, SIL 4/Kat.4, switching voltage 48/60 V =/ 60 V~
32 102	Planar4 2-fold Relay Amplifier, SIL 4/Kat.4, switching voltage 110 V =/ 127V~
32 103	Planar4 2-fold Relay Amplifier, SIL 4/Kat.4, switching voltage 220 V =/ 230 V~
32 110	Planar4 4-fold Relay Amplifier, SIL 2
42 100	Planar4 4-fold AND Element with 5 inputs each, SIL4/Kat.4
42 110	Planar4 8-fold AND Element with 2 inputs each, SIL4/Kat.4
42 200	Planar4 Element Combination, SIL 4/Kat.4
42 300	Planar4 8-fold OR Element with 2 inputs each, SIL4/Kat.4
42 400	Planar4 4-fold Blocking Element, SIL 4/Kat.4
42 500	Planar4 4-fold Selection Element, 2 out of 3 selection, SIL4/Kat.4
52 100	Planar4 Time Delay Element, SIL 3/Kat.4
52 110	Planar4 4-fold Time Delay Element, SIL 3/Kat.4
62 100	Planar4 2-fold Analog Limit Monitor, SIL 3/Kat.4
80 105	Planar4 Communication Module, Modbus
80 106	Planar4 Communication Module, Profibus-DP
80 107	Planar4 Communication Module, Ethernet (OPC)
80 110	Planar4 Reset Module, for reset of the error messagers (ERR)

System cables

The HIMax –PLC -system cables are used to wire the connector boards of the I/O Modules with the termination assemblies X-FTA's.w

Depending on the type of connector board, termination assemblies X-FTA's , several different types of system cables are available:

- with connector on both sides System;
- with connector on one side and with open wire ends on the other side;
- and with open wire ends on both sides.

X-CA 0XY 9T SZ<sup>1)</sup> Cable acc.IEC 60332-1, IEC 60332-2, IEC 60332-3  
 IEC61034-1, IEC 61034-2, IEC60754-1. IEC 60754-2

<sup>1)</sup> X,Y,S,Z,T can be any digit 1..9

System Software:

Product Code	Description	Version
X-CPU 01	HIMax CPU Module	At the time of certification. V3.8 Valid: V13.2
X-CPU 31	HIMAX CPU Module	At the time of certification V3.8 Valid: V13.8
X-COM 01	HIMax Communication Module	At the time of certification: V3.10 Valid: V14.12
X-COM 01 E	HIMax Communication Module	Valid: V15.14
X-SB 01	HIMax System Bus Module	At the time of certification: V3.6 Valid: V7.54
X-I/O modules	HIMax System I/O Modules	At the time of certification: V3.4 Valid V7.56
<b>Device Type</b>	<b>Description</b>	
SILworX	Programming System	At the time of certification: V3.38.0 Valid V13.2.0 R26

**Place of manufacture**

HIMA Paul Hildebrandt GmbH  
 Albert-Bassermann-Strasse 28  
 68782 Bruehl  
 Germany

**Application/Limitation**

The following documentation of the actual application is required to be submitted for approval in each case:

- Reference to this type approval certificate
- Project specific functional description and system block diagram including philosophy for segregation and allocation of functions
- Power supply arrangement (may be part of the system block diagram)
- Document compliance with environment requirements for equipment not included in the type approval
- Test program for certification

The Type Approval covers hardware listed under Product Description.

Product certificate

Each delivery of the HIMA HIMax and Planar4 systems is to be certified according to Pt.4 Ch.9. The certification test is required to be performed at the manufacturer/supplier of the application system according to an approved test program before the system is shipped to the yard. The project specific application functions shall be included in the certification testing of each delivery.

The software version for each application function shall be recorded in the product certificate. After 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.

**System cables**

The following restrictions apply to the listed system cables:

- Nominal voltage: ≤50V AC/DC
- Use only for installation inside switchgears
- Not suitable for the use of special transmission protocols

**Type Approval documentation**

Description	Rev.	Date
Binder 1: HIMax reports		
Binder 2: Planar4 devices – Excerpts from the manual, layouts (HIMax and Planar4)	-	-
Binder 3: HIMax / Planar4 Certificate and Planar4 Devices – Excerpts from the manual, layouts	-	-
Binder 4a: Planar4 reports	-	-
Binder 4b: Planar4 reports	-	-
P1 EV_114 Test Planning and Report	A	2010-04-08
71368806a Technical Report	1	2010-07-07
71368806b Technical Report	1	2010-07-07
5200-359 Test Report	-	2010-07-09
Type Approval Survey Report	-	2010-03-24
Revision list of the HIMax system	-	2009-09
HIMax Release Notes HI 801 145	1.0	2009-12-09
SILworX Release Notes HI 801 145	1.1	2010-06-08
HIMax_X-FTA binder, datasheets	-	-
HIMax_FTA binder, datasheets	-	-
5200-372a Test Report	-	2013-11-27
AMS-13-05 Test Report	-	2013-07-22
713026773 D Test Report	-	2013-08-07
HX01 Test Report	-	2012-03-27
5200-366 Test Report	-	2012-01-19
AMS-12-01 Test Report	-	2012-02-03
71398072B Test Report	1	2012-12-31
HI 801 305 E, X-MIO 7/6 01 Manual	5.00	-
HI 801 355 E, X-CPU 31 Manual	6.00	-
HI 801 307 E, X-HART 32 01 Manual	5.00	-
Revision List of the HIMax-System		2015-12-11
Revision List of the HIMax-System		2009-12-11
Revision List of the PLANAR4 System		2015-03-12
Revision List of the PLANAR4 System		2008-03-10
HIMA IMS-01-07-35740-02, TQ-16-01, Revision list HIMax, Planar4, Devices, Accessories		2016-01-22
HI 801 355E, X-CPU 31 Manual	6.01	-
HIMax System Cable Manual HI 801 353 E	1.00	
Additional EMC test reports: EMV Rhein-Neckar 5200-388, dated 2016-01-15; 5200-391, dated 2016-03-03; 5200-398, dated 2017-06-13; 5200-3107, dated 2019-02-04; 5200-3110, dated 2020-04-17; 5200-3113, dated 2020-10-12.		
HIMA Report No. TQ-2305, IMS-01-07-35730-2	-	2023-03-10
TA Assessment Report, issued by DNV GL Augsburg,		2023-01-23

**Tests carried out**

Applicable tests according to Class Guideline DNV-CG-0339, Edition August 2021.

Applicable tests according to IEC 60533 second edition, 1999.

**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

Renewal assessment is to be performed at renewal of this certificate.

END OF CERTIFICATE