



Marine & Offshore

Certificate number: 74237/A0 BV

File number: MPA2204407

Product code: 44511

*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*

**Smart-Ship B.V.**

DELFT - NETHERLANDS

*for the type of product*

**PROPULSION REMOTE CONTROL SYSTEMS**

Haptic Throttle Lever , Azimuth Lever & Tiller Lever

### Requirements:

Bureau Veritas Rules for the Classification of Steel Ships

EC Code : 31B & 41B

*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: 27 Mar 2028**

**For Bureau Veritas Marine & Offshore,**

At BV GRONINGEN, on 27 Mar 2023,

Olaf RUITER

***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](http://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.

The electronic version is available at: <http://www.veristarm.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=3qvy1pi0cv>

BV Mod. Ad.E 530 June 2017

This certificate consists of 4 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION :

#### 1.1 Product Model: Haptic Throttle Lever , Azimuth Lever & Tiller Lever

**1.2 Product Description:** 1) Throttle Lever support operators in various propulsions operations , for eg to control Fixed / Variable Pitch Propellers and Bow or Stern Thrusters, also get feedback in the form of forces & vibrations through information system or sensors aboard ship.

2) Azimuth Lever supports operators in various manoeuvring operations where Azimuth Thrusters are applied , for example to control tugboats, ferries, or offshore supply vessels.

3) Tiller Lever support operators to control rudders or serve as backup propulsion controllers

#### 1.3 Technical Specifications:

	<b>Description</b>
<b>Name</b>	Azimuth, Throttle and Tiller Lever
<b>Manufacturer</b>	Smart Ship BV
<b>Model Number</b>	11.00.000.000, 12.00.000.000, 13.00.000.000
<b>Voltage</b>	24VDC
<b>Rating Power</b>	<80 Watt
<b>Operating Temperature</b>	-25°C....+70°C
<b>IP Rating</b>	IP56: Throttle and Tiller Levers IP52: Azimuth Lever
<b>Software Release</b>	01.000.01

#### 1.4 Software version Identification : MODULE\_NAME AA.BBB.CC

<b>Identifier</b>	<b>Explanation</b>	<b>Options</b>
MODULE_NAME	Name of the Software Module	-
AA	Major Release	00-99
BBB	Minor Release	000-999
CC	Release Status	00- Under Development 01- Released 02- Discontinued

#### 1.5 Power Supply Units:

Sr. No	Manufacturer	Description	BV TAC No.		
1	Phoenix Contact GmbH & Co. KG	Single Phase series	21005/xx		
		STEP-PS/1AC/24DC/xx			
		QUINT-ORING / 24DC / 2x10 / 1x10	36077/xx		
		QUINT4-PS/1AC and QUINT4-PS/3AC	44621/xx		
		QUINT4-PS DC/DC converter	57060/xx		
		QUINT-UPSxx, QUINT-BUFFERxx, UPS-BATxx and UPS-CAPxx series	41516/xx		
		QUINT-PS/... DC/DC converter series	27622/xx		
		QUINT4-UPS/...DC/DC uninterruptible power supply series	69394/xx		
2	PULS GmbH	Single and three phase series	21004/xx		
		QUINT-PS/1AC/24DC/3.5, 5, 10, 10CO, 20, 40 and QUINT-PS/3AC/24DC/5, 10, 20, 40			
		CP20.241, CP20.245	58507/xx		
		SITOP LOGO!Power	28219/xx		
		4	Weidmüller Interface GmbH & Co. KG	PRO TOP1	48162/xx
				Three-phase primary switched-mode power supplies PRO TOP3	63355/xx
				DC/DC Converter PRO TOPDC	63090/xx
				DC UPS control unit CP DC UPS 24V series Energy storage modules DURA ECO LA-BAT series	68512/xx

	PRO DCDC 120W 24V 5A, PRO DCDC 240W 24V 10A, PRO DCDC 480W 24V 20A	65011/xx
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## 2. DOCUMENTS AND DRAWINGS :

- Installation and Operation Manual\_Azimuth Lever, ver. 001, dated October, 2022.
- Installation and Operation Manual\_Throttle Lever, ver. 001, dated October, 2022.
- Installation and Operation Manual\_Tiller Lever, ver. 001, dated October, 2022.
- Throttle Software Version History, ver. V5, dated 15-08-2022.
- Azimuth Software Version History, ver. V5, dated 15-08-2022.
- Tiller Software Version History, ver. V5, dated 15-08-2022.
- Software Quality Management Plan, version V1, dated 26-01-2023.
- Drawing Azimuth General overview , dated 26-10-2022.
- Drawing Central Shaft R2 11.02.009.000, dated 11-07-2022.
- Drawing Azimuth cover and lever 11.03.004.000. dated 31-10-2022.
- Drawing Throttle Overview 12.00.000.000 dated 31-10-2022.
- Drawing cover LED R2 12.02.003.000 dated 11-07-2022.
- Drawing Tiller Standard views 13.00.000.000, dated 27-10-2022.
- Schematic Control board Azimuth, dated 31-10-2022
- Schematic Control board Throttle/Tiller , dated 31-10-2022
- Test Plan for Type Approval, version V1 dated 03-06-2022
- Test Plan Electromagnetic Compatibility , No. 20220319TPR01 dated 2022 August 05
- Test Plan for environmental testing for encoder PCB, dated 13-10-2022

## 3. TEST REPORTS :

- Test Report Electromagnetic compatibility No. 20220321.001RPT01, dated 26 October 2022.
- Test Report Electromagnetic compatibility No. 20220321.002RPT01, dated 26 October 2022.
- Test Report Electromagnetic compatibility No. 20220321.003RPT01, dated 26 October 2022.
- Environmental Test Report No. 0026~H0203~0000266664, dated 2022-11-09
- Test Report Performance, Visual & Inclination Tests, dated 10/11/2022.
- Test Report IPx2 Test Azimuth Controller, dated 02-03-2023

## 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: 31B & 41B**
- 4.4 - The equipment fulfils the EMC requirements for installation in Bridge and Deck Zone.
- 4.5 - The equipment, once installed on board ship, is to be tested in accordance with the above referred Rules under the supervision of a Society's Surveyor.
- 4.6 - Each application and configuration is to be submitted to the Society's examination prior to fitting on board
- 4.7 - Only Hardware and Firmware / Software successfully tested together in compliance with the rules as referred to in cover page, according to the declaration of the manufacturer are covered by this certificate.
- 4.8 - Any modification of the hardware, firmware or software having an impact on the product performance or functionality has to be validated with type testing.
- 4.9 - 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.
- 4.10 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev 8.
- 4.11 - Power Supply Units connected to Haptic Throttle Lever , Azimuth Lever & Tiller Lever should be type approved by BV.

## 5. PRODUCTION SURVEY REQUIREMENTS :

- 5.1 - The above types of product are to be supplied by **Smart-Ship B.V.** in compliance with the type and the requirements described in this certificate.
- 5.2 - This type of product is within the category IBV of Bureau Veritas Rule Note NR320.
- 5.3 - BV product certificate is required.
- 5.4 - For information, **Smart-Ship B.V.** has declared to Bureau Veritas the following production site:

**Smart -Ship B.V.  
Molengraaffsingel 12  
2629 JD DELFT  
NETHERLANDS**

5.5- The components listed in 1.5 have to be covered by a valid type approval certificate, issued by the Society.

**6. MARKING OF PRODUCT :**

6.1 - Maker's name or trade mark.

6.2 - Serial number of the units.

6.3 - Equipment type number or model identification under which it was type-tested.

6.4 - Ⓢ or Ⓞ conformity marking, as relevant.

**7. OTHERS :**

It is **Smart-Ship B.V.**'s responsibility 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.

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