Lloyd's Register

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

This certificate is issued to:

PRODUCER

HOPPE Marine GmbH
Kieler Str. 318
22525 Hamburg
Germany

DESCRIPTION

Processing Units and Motion Sensors
Programmable Logic Controller, Electronic Inclinometer & Ships Inertial Measuring System, Passive Power over Ethernet (PoE) and Linear Position Indicator

TYPE

	Part No.	Software Version
HOMIP 2 (Hoppe Monitor Interact Process)	F-02497-18013	L1: 1.y.zz L2: 2.y.zz
Hoppe Electronic Inclinometer	F-03102-30003	1.y.zz
HOSIM 2 (Hoppe Ships Inertial Measuring System)	F-03102-21000	1.y.zz
Hoppe Linear Position Indicator	F-08381-00001 F-08381-00002-12 F-08381-00003-13	
Passive Power over Ethernet (PoE)	F-09417-00000	

y = minor modifications; zz = bug fixes

APPLICATION

Marine, offshore and industrial applications for use in environmental categories ENV1, ENV2 and ENV3 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 – July, 2015.

Certificate No. 17/20011

Issue Date 06 February 2017

Expiry Date 05 February 2022

Thorsten Wolff
Hamburg Technical Support Office
Lloyd's Register EMEA

LR031.1.2013.12

Sheet 1 of 3

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HOPPE

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ADDITIONAL TESTS	HOSIM 2 and Linear Position Indicator: Enclosure test IP X8 (1bar/40hrs) Low temperature (-15°C/16hrs)
STANDARD	LR Test Specification Number 1 – July, 2015 IEC 60945:2002 IEC 61162:2010 Alert State Diagram acc. IEC 61924-2:2012
RATINGS	HOMIP 2 (Hoppe Monitor Interact Process) Network: 2 x Ethernet RJ 45, ETH0: 10/100 Mbit/s, ETH1: 10/100/1000Mbit/s, MDIX; USB: 1x Device and 2x Host, USB 2.0, up to 50 MB/s; Card interface: SD / MMC, up to 25 MB/s; Serial interfaces (optional): 2x RS 422, 6x RS 485, 2x CAN 500 Kbit; all interfaces isolated 250 VDC Relays: K1 system alarm: 1 A / 50 VDC resistive load (NC) optional: K2 and/or K3 multi-purpose: 0.5 A/125 VAC Power supply: 24 VDC Power consumption: 15 W Degree of protection: IP44 HOSIM 2 (Hoppe Ships Inertial Measuring System) Processor: ARM Cortex A9 Dual Core, 800 MHz, 32 bit; 1GB RAM; Root file system: FLASH 4 GB Interfaces: 1x RS422/RS485; 1x RS485; 1x Ethernet 100 Mbit, Auto-MDIX Measurement accuracy of the HOSIM system: Linear acceleration: ± 0.005m/s² (standard deviation) Angular velocity: ± 0.05°/s (standard deviation) Roll angle/pitch angle: ± 0.01° (static, standard deviation) Power supply: 24 VDC Power consumption: 10 W Degree of protection: IPX8

Certificate No.	17/20011
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Sheet	2 of 3

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RATINGS continued

Hoppe Electronic Inclinometer
Processor: ARM Cortex A9 Dual Core, 800 MHz, 32 bit; 1GB RAM;
Root file system: FLASH 4 GB
Power supply: 24 VDC, 600 mA miniature fuse
Power consumption: 12 W
Degree of protection: IP44

Hoppe Linear Position Indicator
Communication: Open/Close indication = high/low signal for digital outputs
Power Supply: 24 VDC nominal
Max. current: Default 250 mA (depending on input resistance of connected digital input module)
Power input protection: Self-resetting fuse (I (trigger): 300mA)
Degree of protection: IPX8

Passive Power over Ethernet (PoE)
Communication: X1: 24 VDC Power
X2: Ethernet 10 Base-T & Ethernet 100 Base-TX
X3: Mixed Ethernet and power
Power supply: 24 VDC
Current: max. 1 A

The Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

If the specified standards are amended during the validity of this certificate, the product is to be re-approved prior to it being supplied to vessels to which the amended standards apply.

The Design Appraisal Document No. HTS/ETS 34765-17 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

Certificate No. 17/20011

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Sheet 3 of 3

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Design Appraisal Document

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Date
06 February 2017

Please quote this reference number on all future communications
HPC 1662079/34765-17/TW/KW

THE LLOYD'S REGISTER'S TYPE APPROVAL SYSTEM, 2015
ISSUED TO: HOPPE MARINE GMBH, HAMBURG
FOR: PROCESSING UNITS AND MOTION SENSORS
TYPE APPROVAL CERTIFICATE NO. 17/20011

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register's Type Approval System Procedure TA14 and this Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

Unnumbered	Application Checklist	14.06.2016
HPC1662079	Production Quality Assessment Form	12.12.2016
F-08025-00040-LA	Approval Documentation (789 pages)	10.01.2017 Revision 1.1
F-08025-09006-DOC	PEP-Workflow	08.12.2016 Revision 1.2

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LR031.1.2013.12

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FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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Date
06 February 2017

Please quote this reference number on all future communications
HPC 1662079/34765-17/TW/KW

Supplementary Type Approval Terms and Conditions

Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.

Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the LR Type Approval System Procedure.

Part 3

Recording and Indicating Instruments

Producer/Licence No.	Item Description	Technical Details	Category/Additional Tests	Remarks	Cert. No.
Hoppe Marine GmbH **Kieler Strasse 318** **22525 Hamburg** **Germany**	Processing Units and Motion Sensors		ENV1, ENV2, ENV3 (2015)	Expires: 05 February 2022	17/20011
	HOMIP 2 (Hoppe Monitor Interact Process) Part No. F-02497-18013 Firmware version L1: 1.y.zz / L2: 2.y.zz y = minor modifications zz = bug fixes	Network: 2 x Ethernet RJ 45, ETH0: 10/100 Mbit/s, ETH1: 10/100/1000Mbit/s, MDIX; USB: 1x Device and 2x Host, USB 2.0, up to 50 MB/s; Card interface: SD / MMC, up to 25 MB/s; Serial interfaces (optional): 2x RS 422, 6x RS 485, 2x CAN 500 Kbit; all interfaces isolated 250 VDC Relays: K1 system alarm: 1 A / 50 VDC resistive load (NC) optional: K2 and/or K3 multi-purpose: 0.5 A/125 VAC Power supply: 24 VDC Power consumption: 15 W Degree of protection: IP44	HOSIM 2 and Linear Position Indicator: Enclosure test IP X8 (1bar/40hrs) Low temperature (-15°C/16hrs)	Installation and arrangement of the systems are to be in compliance with relevant LR Rules if applicable and are subject of the Plan Approval Process. The complete system remains to be finally examined and tested when installed on board under working conditions to the local Surveyor's satisfaction.	
	Hoppe Electronic Inclinometer Part No. F-03102-30003 (SW Version 1.y.zz)	Processor: ARM Cortex A9 Dual Core, 800 MHz, 32 bit; 1GB RAM; Root file system: FLASH 4 GB Power supply: 24 VDC Power consumption: 12 W Degree of protection: IP44			
	HOSIM 2 (Hoppe Ships Inertial Measuring System) Part No. F-03102-21000 (SW Version 1.y.zz)	Processor: ARM Cortex A9 Dual Core, 800 MHz, 32 bit; 1GB RAM; Root file system: FLASH 4 GB Interfaces: 1x RS422/RS485; 1x RS485; 1x Ethernet 100 Mbit, Auto-MDIX Measurement accuracy of the HOSIM system: Linear acceleration: ± 0.005m/s² (standard deviation) Angular velocity: ± 0.05°/s (standard deviation) Roll angle/pitch angle: ± 0.01° (static, standard deviation) Power supply: 24 VDC Power consumption: 10 W Degree of protection: IPX8			

Part 3

Recording and Indicating Instruments

Producer/Licence No.	Item Description	Technical Details	Category/Additional Tests	Remarks	Cert. No.
	Hoppe Linear Position Indicator Part No. F-08381-00001, F-08381-00002-12, F-08381-00003-13	Communication: Open/Close indication = high/low signal for digital outputs Power Supply: 24 VDC nominal Max. current: Default 250 mA (depending on input resistance of connected digital input module) Power input protection: Self-resetting fuse (I (trigger): 300mA) Degree of Protection: IPX8			
	Passive Power over Ethernet (PoE) Part No. F-09417-00000	Communication: X1: 24 VDC Power X2: Ethernet 10 Base-T & Ethernet 100 Base-TX X3: Mixed Ethernet and power Power supply: 24 VDC Current: max. 1 A			