

## 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.

<b>Manufacturer</b>	<b>Boeing Automationstechnologie GmbH &amp; Co. KG</b>
<b>Address</b>	Am Steenoever 4, Ganderkesee, 27777, Germany
<b>Type</b>	Alarm And Monitoring Systems
<b>Description</b>	Alarm-, start-/stop- and safety system for diesel engines
<b>Trade Name</b>	AHD 504 A, AHD 504 NG, AHD 504 OP, AHD 514 A, AHD 514 S, AHD 514 OP
<b>Application</b>	Marine, offshore and industrial applications for use in environmental categories ENV1, ENV2, ENV3 and ENV4 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 – 2002.
<b>Specified Standard</b>	Manufacturer's specification IACS unified requirements E10 (Rev.8 Feb 2021)
<b>Ratings</b>	Power supply: 24VDC  refer to the Appendix for further details
<b>Additional Tests</b>	Low temperature test (-25°C/16h)
<b>Other Conditions</b>	The complete installation is subject to a separate plan appraisal according to applicable Rules and Regulations when installed on LR classed vessels.

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## Type Approval Certificate

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

**Previous Version:** This certificate supersedes certificate number LR2003809TA issued on 17 June 2020 which is hereby cancelled.

The Design Appraisal Document HPC1562061-22/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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## Appendix

### **RATINGS**

#### **AHD 504 A Alarm System and Start-/Stop Unit**

9 x analog (selection 4–20mA / PT1000 / Bin via Jumper)  
2 x analog (selection NiCrNi / 0-32V via Jumper)  
3 x binary (Contact/Bedia with wire break monitoring)  
6 x binary (control inputs)  
1 x engine speed input (Pickup, galvanically isolated)  
1 x Transistor 8A, wire break monitored, short-circuit proof (for solenoid or operating solenoid)  
4 x relay 3A (32VDC, potential free)  
1 x Transistor (32V/25mA)  
2 x LED indicator (Power, Fault)  
Interfaces: 2 CAN bus, RS232 diagnostic, serial for I/O extensions  
Functions: Alarming, start-/stop Control, logging  
Firmware-Version: 3.12.xxx

#### **AHD 504 NG Grid and Generator Capture Unit**

3 x analog (400V AC, 50Hz / 60Hz) voltage and frequency measuring  
Interfaces: 1 CAN Bus  
Functions: measuring and monitoring of voltage and frequency of the power grid  
Firmware-Version: 2.4.1.xx

#### **AHD 504 OP / AHD 514 OP Operator Panels**

AHD 504 OP: 4.3" (16:9) colour display with automatic dimmed illumination  
AHD 514 OP: 5.7" colour display with automatic dimmed illumination  
Interfaces: CAN Bus for communication with AHD 504 A, AHD 504 NG, AHD 514 A and AHD 514 S.  
Functions: Indication of most important analog engine parameters on each page, engine status indication, alarm pages for acknowledged and unacknowledged alarms, membrane keys for engine start/stop, buzzer stop, acknowledgement, reset and page selection, buzzer  
AHD 504 OP: Firmware-Version: 1.1.x  
AHD 514 OP: Firmware-Version: 1.30.xxx.x

#### **AHD 514 A Alarm System and Start-/Stop Unit**

6 analog inputs 4-20mA  
6 analog inputs PT100/PT1000  
1 RPM input, galvanic isolated  
2 add. binary inputs  
6 binary inputs for control  
2 voltage input for fuse trip and charging alternator  
2 voltage input for speed-up/down  
8 binary relay outputs 6A

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2 binary transistor outputs (with wire break monitoring)  
1 voltage output 1-5V/1-10V  
2 status-LEDs  
Interfaces: 2 CAN bus, RS232 diagnostic, serial for I/O extensions (e.g. AHD R101)  
Functions: Alarming, start-/stop Control, logging.  
Firmware-Version: 3.12.xxx

**AHD 514 S Safety System**

2 emergency stop inputs (direct acting) with wire break monitoring  
5 binary inputs for automatic shut down with wire break monitoring  
5 binary inputs for control (reset, override...)  
1 RPM input, galvanic isolated  
4 binary relay outputs, 6A  
2 transistor outputs 8A, with wire break monitoring  
1 transistor output 8A, short-circuit-proof with wire break monitoring  
1 current output 4..20mA  
2 status-LEDs  
8 alarm-LED for override, emergency stop, overspeed and 5 other safety stop criteria  
Interfaces: 1 CAN Bus for communication with AHD 514-A and AHD 514-OP, serial output  
Functions: Manual emergency stops and automatic shut-down.  
Firmware-Version: 1.20.xx