



# 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:

<b>PRODUCER</b>	KONGSBERG MARITIME AS Haakon VII's gt. 4 7005 Trondheim Norway								
<b>DESCRIPTION</b>	Wireless Engine Temperature Monitoring System with sensors and stationary antenna located in engine crank case. Outputs from Signal Processing Unit: CAN open, RS485 and Modbus or 4-20mA and 3 relay outputs and monitoring of working status of SPU. The system exists in standard and Ex-certified executions.								
<b>TYPE</b>	Sentry GB-200 wireless temperature sensor system Comprising the main components:  <table border="0" style="margin-left: 20px;"> <tr> <td>GBP200/-</td> <td>Signal Process Unit, with up to 20 temperature inputs</td> </tr> <tr> <td>GBW- - - /</td> <td>Wireless Sensor located inside engine crank case</td> </tr> <tr> <td>GBSI- - /</td> <td>Stationary antenna located inside engine crank case</td> </tr> <tr> <td>GB</td> <td>Cable Gland</td> </tr> </table>	GBP200/-	Signal Process Unit, with up to 20 temperature inputs	GBW- - - /	Wireless Sensor located inside engine crank case	GBSI- - /	Stationary antenna located inside engine crank case	GB	Cable Gland
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GBW- - - /	Wireless Sensor located inside engine crank case								
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<b>APPLICATION</b>	Marine and Offshore applications for use in environmental categories ENVI, ENV2, ENV3 and ENV4 as specified in LR Test Specification No.1: 2015 in "General Power Distribution Zones" where the Test Specification is satisfactory for the intended operation.								
<b>ADDITIONAL TESTS</b>	Vibration: 40 - 300Hz, 10g for GBW- - - /. Shock test: 5g, 11ms, 1000 applications, axis, direction for GBSI- - / and GBW- - - /.								
<b>Certificate No.</b>	17/20042								
<b>Issue Date</b>	19 April 2017								
<b>Expiry Date</b>	02 December 2021								
<b>Sheet</b>	1 of 2								



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**ADDITIONAL TESTS (cont.)** Dry Heat: 85°C, 16 hrs for GBP200/- and 90°C, 16 hrs for GBSI- -/and GBW- - -/.

Low Temp: -25°C, 16 hrs for all components.

Ingress Protection: IP66 for GBP200 and IP67 for GBW- - -/and GBSI- -/ with coaxial cable.

Hot oil immersion test: 10 cm depth, 48 hrs, 80°C Oil temp for GBW- - -/

**STANDARD** Manufacturer's Specification

**OTHER CONDITIONS** This equipment when installed in LR Classed vessels is to comply with the Rules and Regulations for the Classification of Ships Part 6, Chapter 1. Cabling, Grounding and Shielding of equipment see Kongsberg User Manual.

Installation of this equipment does not replace the requirement for installing crankcase protection in combustion engines as per Part 5, Chapter 2, of the LR Rules and Regulations for the Classification of Ships.

The engine builder must approve the installation in each case.

Any temperature limitations in the Ex certificates shall be observed.

*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 35151-17 and its supplementary Type Approval Terms and Conditions form part of this Certificate.*

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