

Type Approval Certificate



[Temperature Monitoring System]

Initial Approval 15th April, 2022
Manufacturer Kongsberg Maritime AS, Trondheim
 Skonnertvegen 1, NO-7053 Ranheim, Norway
Product Description Type : Wireless Temperature Monitoring System "SENTRY GB-300"
 Intended for Safety Unit for Rotating Machinery
 " See Appendix 1 "

Approval Condition " See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt. 6, Ch. 2, Art. 301 of the Rules for Classification, Steel Ships.

This Certificate is valid until 14th April, 2027

Issued at Busan, Korea on 15th April, 2022



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No(ME22010934214) and certificate No.(CPH04968-AC006).



KOREAN REGISTER

*General Manager of
Marine & Ocean Equipment Team*

- Note :**
1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
 2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
 3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
 4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Product Description and/or Approval Condition

Date of Issue : 15th April, 2022

A. Product Description

1. Product Specification

- 1) System description
 - Wireless Temperature Monitoring System "SENTRY GB-300" is intended for monitoring of the bearing temperatures of rotating machinery.
- 2) System comprising;

| Description | Type designation | Remark |
|--|------------------|-----------|
| Signal Processing Unit | GBP300/A or B | 1) and 2) |
| Stationary Antenna with Coax cable | GBS--- | - |
| Wireless Temperature Sensor | GBW--- | - |
| Remark 1) for GBP300/A: Unit with CAN and RS 485 MODBUS | | |
| 2) for GBP300/B: Unit with CAN, RS 485 MODBUS and 4-20mA | | |

- 3) Software versions;

| Description | Program | Software version | Remark |
|--|--------------|------------------|--------|
| GB-300 Bootloader software | P1GB300-B00T | 1.2. x | 1) |
| GB-300 main software | P1GB300 | 1.2. x | 1) |
| KM-CT Sensor Program for GBW--- | KM-CT Sensor | 5.2.0. x | - |
| Remark 1) The SENTRY "GB-300" has one microcontroller which require "Bootloader" and "main software" installation. | | | |
| Remark 2) Maintenance of SW versions is described in documents: | | | |
| A. "Software revision history for Kongsberg Maritime Sentry System GB-300" (Doc. No. : 441782, Rev. C) | | | |
| B. "Software revision history for Sentry Configuration tool KM-CT Sensor" (Doc. No. : 442145, Rev. B) | | | |

- 4) Explosion proof grade:
 - Ex db [ia Ga] IIC T6 Gb -20°C≤Ta≤+60°C (IECEX PRE 18.0086X Issue No.1)
 - Ex nA [ia Ga] IIC T5 Gc -25°C≤Ta≤+85°C (IECEX PRE 18.0087X Issue No.1)

2. Approved Drawings and Documents

- 1) Software documents;
 - 441782 Rev. C, 442145 Rev. B,
- 2) Drawings;
 - 442138 Rev. B, E-2779 Rev. C, E-2780 Rev. A, E-2782 Rev. G, GB-1233 Rev. C, GB-1235 Rev. E, GB-1236 Rev. B

3. Test Reports, etc.

- 1) Test Reports
 - E18061.00(2018-04-25), 448163 Rev. A (2019-02-19), PR-2231 Rev. D (2021-01-13),
- 2) Instructions for GBP300 specific to hazardous area installations
 - 447662 Rev. C,
- 3) Manual
 - P-GB300/FE Rev. C, P-KMCTGB200/FE Rev. G

B. Approval Condition

1. Application & Limitation

- 1) This approval is granted on the basis of the approved documentation and test reports.
- 2) The manufacturer should inform this Society of all kinds of revisions of the equipment including software. If the changes are recognized to affect functionality of the approved equipment, type test to confirm the reliability of the revised equipment may be performed

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in the presence of our surveyor.

- 3) Degree of protection shall be complied with Rule Pt. 6 Ch. 1 Sec. 2 201. 2. (5).
- 4) Explosion-proof certification by a notified/recognized Certification Body is not covered by this certificate. Ratings and Special Condition for Safe Use in hazardous areas are to be obtained from the relevant valid Ex-Certificate.
- 5) The product shall not be installed in the bridge or on open decks.
- 6) Installation is to be in accordance with manufacturer's instruction.

2. Individual Product Cert. and Drawing Approval Requirement

- 1) Individual product certificate is not required.

3. Marking

- 1) The product or packing is to be marked with the manufacturer's name and type designation on a suitable position.

4. Others

- 1) Test condition (IACS UR E10 Rev. 8 basis)

| Test | Condition | Remark |
|--------------------|--|--------|
| EMC | All locations excluding the bridge and deck zone | - |
| Temperature | -25°C ~ +85°C | - |
| Vibration | Acceleration $\pm 4g$ | - |
| Ingress protection | IP44 | - |

< End of Certificate >