



EUROPEAN UNION RECOGNISED ORGANISATION (EU RO) MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE

Certificate No:
MRA000002T

In accordance with Article 10.1 of EU Regulation 391/2009

This Certificate is issued to
Kongsberg Maritime AS
Ranheim, Norway

for
Temperature Gauges/Sensors/Transmitters

with type designation(s)
GN-40

The product is found to comply with
EU RO Mutual Recognition Technical Requirements for Temperature Gauges and Transmitters

Intended service
Signal converter / temperature transmitter for use in engine rooms and similar applications, intended for a wide range of temperature sensors and input signals.
See product description on page 2.

Temperature [°C]: -40° to 85°
Vibration: ±8.0 mm / 10 g
EMC: All locations including bridge and open deck
IP Code: See "Other Conditions"

This is to certify:

that the Product referred to herein has been inspected for the Manufacturer, pursuant to the relevant requirements of the European Union Recognised Organisation Mutual Recognition procedure, required by Article 10.1 of EU Regulation 391/2009, and has been found in accordance with those requirements.

This Certificate is valid until **2026-04-08**.

Issued at **Høvik** on **2021-04-09**

DNV local station: **Trondheim**

Approval Engineer: **Nils Jarem**



for **DNV**
Digitally Signed By: Sneen, Ståle
Location: DNV Høvik, Norway
on behalf of

Marta Alonso Pontes
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: MRTA 201

Revision: 2021-03

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Product description

The KONGSBERG GN-40 Signal Converter is a multi-purpose and multi-channel signal converter for use in engine rooms and other similar applications. With high durability against vibrations and input options like thermocouple, PT100 and 4-20mA it is a capable data collector of the many measuring points of a modern gas or diesel engine. Output signals are CANOpen fieldbus and Modbus RTU (RS485). GN-40 is fitted with dialswitches for individual configuration of in total 20 analogue input channels. In addition, there are 2 fixed frequency inputs 0-50 kHz and 4 fixed digital inputs.

Inputs:

10x Pt100 3-wire
 10x Pt1000 2-wire (option)
 20x Thermocouple type K
 10x 4-20mA, active or passive*
 10x On/off
 2x frequency, 0-50 kHz
 4x digital

Outputs:

CANOpen fieldbus
 Modbus RCU (RS485) (option)

Configuration:

By HW (switches) or by SW tool

Tested and approved for nominal power supply 24 VDC.

Firmware: P1GN-40-Main – V1.0.x
 P1GN-40 BOOT – V1.0.x

Manufactured by

KONGSBERG MARITIME AS AVD SKONNERTVEGEN
 Ranheim, Norway

Application/Limitation

The Type Approval covers hardware listed under type designation.

When the hardware is used in applications subject to class approval, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case.

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

Type Approval documentation

Name	Number	Rev./Date
Nemko EMC/ENV test report for GN-40	E20087.00	00/2020-06-09
Software revision history for KM signal converter GN-40.	458915	C
Temperature transmitter type GN-40 Outline Drawing	GN-079	A
Temperature transmitter GN-40/- Ordering key Layout Drawing	GN-083	A
EU RO MR TA PQA scheme periodical assessment checklist, DNV Trondheim		2021-03-18

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

Other Conditions

The transmitters have been verified for compliance with EU Mutual Recognition Technical Requirements for Temperature gauges and transmitters version 0.1. The testing covers IACS UR E10 Rev.7, including 100 g / 11 ms impact (shock) test according to IEC 60068-2-27.

Environmental test parameters		DNV location classes
Temperature:	-40°C and 85°C	D
Vibration:	±8.0 mm / 10 g	B
Humidity:	95%RH @ 55°C, damp heat cyclic	B
EMC:	All locations including bridge and open deck	B
Enclosure:	Required IP grade for an application is to be met by choice of enclosure. (IP-ratings according to IEC 60529) Requirements to be flame retardant is met by choice of enclosure.	Required protection according to relevant rules shall be provided upon installation on board

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment will be performed annually and at renewal of the certificate.

END OF CERTIFICATE

Generic Statement for EU RO MR Type Approval Certificate

When a product is presented with this EU RO MR Type Approval Certificate for given application, its acceptability with regards to the limitations stated in the certificate conditions defined in 1b, 1c and 1d of the applied Technical Requirement will be evaluated by the EU RO in charge of classing the ship or being in charge of the unit/system certification.

In accordance with Article 10 of Regulation (EC) No 391/2009 of the European Parliament and of the Council of 23 April 2009 "on common rules and standards for ship inspection and survey organizations", the following organizations, recognized by the EU on this date, have agreed on the technical and procedural conditions under which they will mutually recognize this certificate:

- American Bureau of Shipping (ABS);
- Bureau Veritas (BV);
- China Classification Society (CCS);
- Croatian Register of Shipping (CRS);
- DNV;
- Indian Register of Shipping (IRS);
- Korean Register (KR);
- Lloyd's Register Group Ltd. (LR);
- Nippon Kaiji Kyokai General Incorporated Foundation (ClassNK);
- Polish Register of Shipping (PRS);
- RINA Services S.p.A. (RINA);
- Russian Maritime Register of Shipping (RS).

The scheme for the mutual recognition of class certificates for materials, equipment and components laid down by Article 10(1) of Regulation (EC) No 391/2009 is only enforceable within the Union in respect of ships flying the flag of a Member State. As far as foreign vessels are concerned, the acceptance of relevant certificates remains at the discretion of relevant non-EU flag States in the exercise of their exclusive jurisdiction, notably under the United Nations Convention on the Law of the Sea (UNCLOS). (In accordance with COMMISSION IMPLEMENTING REGULATION (EU) No 1355/2014 amending Regulation (EC) No 391/2009 - recital (25)).