



TYPE APPROVAL CERTIFICATE

Certificate no.:
TAA0000211
Revision No:
2

This is to certify:

that the **Pressure Transmitter**

with type designation(s)
MIDAS C18 SW (Type 401012); MIDAS S21 Ex (404710)

issued to

JUMO GmbH & Co. KG
Fulda, Hessen, Germany

is found to comply with

DNV rules for classification – Ships, offshore units, and high speed and light craft

Application:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Location classes:

Temperature	D (Type 401012), B (404710)
Humidity	B
Vibration	B
EMC	B
Enclosure	B (IP65/67)

Issued at **Hamburg** on **2024-01-22**

for **DNV**

This Certificate is valid until **2028-09-16**.

DNV local unit: **Hamburg**

Approval Engineer: **Holger Jansen**

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.



Product description

MIDAS C18 SW (Type 401012)

Pressure transmitter with impervious and hysteresis-free ceramic measuring cell, a titanium case, and a titanium process connection.

Measuring ranges are available in the range of -1.0bar up to 100bar.

Signal output: 4mA to 20mA (two-wire) and DC 0V to 10V (three-wire),

Jump response time t_{90} : ≤ 2 ms.

Electrical connections: Round plug M12 (connection 36) or Cable socket (connection 61).

Voltage supply: 4mA to 20mA, two-wire (output 405) 10V to 30VDC, rated voltage supply 24VDC
0 to 10V DC, three-wire (output 415) 11.5V to 30VDC, rated voltage supply 24VDC.

Burden: Current $R_L \leq (U_B - 8V) \div 0.02A(\Omega)$ for 4 to 20mA, two-wire (output 405),
Voltage $R_L \geq 10k\Omega$ for DC 0 to 10V, three-wire (output 415).

Degree of protection: Type with round plug M12 (connection 36): IP67,
Type with cable socket (connection 61): IP65.

Temperature-tested up to 85°C

Vibration withstand according to IEC60068-2-6: 20g, 15...2000Hz.

MIDAS S21 Ex (404710)

The pressure transmitter measures the pressure of gases, vapors and liquids. The device operates according to the piezoresistive measuring principle.

Measuring ranges are available in the range of -1.0bar up to 100bar.

Voltage supply: 24Vdc

Current consumption: ≤ 23 mA

Signal output: 4mA to 20mA (two-wire)

Jump response time t_{90} : ≤ 2 ms.

Electrical connections: M12 plug connector, line socket

Burden: $R_B \leq (U_B - 16V) \div 0.022A(\Omega)$ for 4 to 20mA, two-wire

Degree of protection: IP65

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Type Approval documentation

MIDAS C18 SW

Overview of documents 401012 Version 05 dated 2023-07-17

Data Sheet 40101200T10Z001K000 Version 9.00 dated 2021-12-13

Installation Instruction 40101200T94Z000K000 Version 10.01 dated 2021-12-13

Overview Test Records for type approval C18 SW (401012), Version: 04, dated 2021-05-12.

Additional EMC Test Report EW-3349.61000-4-3.A.1.0, dated 2021-04-30.

MIDAS S21 Ex

Overview of documents 404710 Version 01 dated 2023-07-17

Data Sheet 40471000T10Z000K000 Version 05 dated 2023-08-28

Operation Manual 40471000T90Z000K000 Version 7.00 dated 2023-08-28

Test Report No. EW-7266.60068-2-6.MIDAS S21 Ex_DNV.2.0 dated 2023-07-20

Test Report No. WP.23.05.03 dated 2023-05-05

Test Report No. EW-7266 dated 2023-07-04

Type Approval Assessment Report dated 2023-03-23.

Tests carried out

Applicable tests according to Class Guideline DNV-CG-0339, Edition August 2021.

Marking of product

Maker, type and serial number.

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 is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of this certificate.

END OF CERTIFICATE