



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA0000324
Revision No:
4

This is to certify:

That the Pressure Transmitter

with type designation(s)

Cerabar PMC51B / PMC71B / PMP51B / PMP71B; Deltabar PMD55B / PMD75B / PMD78B

Issued to

Endress+Hauser SE+Co. KG
Maulburg, 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
Humidity	B
Vibration	A, B*
EMC	B
Enclosure	C, D**

Notes (*) and () to be observed on the following pages**

Issued at **Hamburg** on **2024-10-11**

for **DNV**

This Certificate is valid until **2026-12-01**.

DNV local station: **Augsburg**

Approval Engineer: **Holger Jansen**

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Frederik Tore Elter
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.



Product description
Cerabar PMC51B

Main feature	Specification / Options
Ex-Approval	Ratings for application in hazardous areas are to be obtained from the applicable Ex Certificates.
Output	2-wire 4-20mA 2-wire 4-20mA HART
Firmware	01.00.zz, HART 7, DevRev01
Display	Without Segment display w/o buttons (with or without Bluetooth)
Housing	Single compartment; Alu, coated <i>*Note: Vibration class B</i> <i>**Note: Not for use on open deck</i>
	Dual compartment; Alu, coated <i>*Note: Vibration class B</i> <i>**Note: Not for use on open deck</i>
Electrical connection	Cable Gland Thread Plug (M12, HAN7D or Valve ISO4400) Cable up to 5m
Pressure type	Gauge Absolute
Sensor range	Up to 40bar/4MPa/600psi
Process connection	Flange Thread (except <1/2")
Seal	As per process requirement
Optional Items	
Mounted accessories	Prepared for sealing (custody transfer)
Accessories enclosed	Weld-in adapter Flushing ring

Cerabar PMC71B

Main feature	Specification / Options
Ex-Approval	Ratings for application in hazardous areas are to be obtained from the applicable Ex Certificates.
Output	2-wire 4-20mA HART
Firmware	01.00.zz, HART 7, DevRev01
Display	Without Segment display w/o buttons (with or without Bluetooth) Graphic display touch control (with or without Bluetooth)
Housing	Single compartment; Alu, coated <i>*Note: Vibration class B</i> <i>**Note: Not for use on open deck</i>
	Dual compartment; Alu, coated <i>*Note: Vibration class B</i> <i>**Note: Not for use on open deck</i>
	Dual compartment; 316L -
Electrical connection	Cable Gland Thread Plug (M12, HAN7D or Valve ISO4400) Cable up to 5m
Pressure type	Gauge Absolute
Sensor range	Up to 40bar/4MPa/600psi
Process connection	Flange Thread (except <1/2" if housing single compartment; Alu, coated or <1 1/2" for all other housing options)

Seal	As per process requirement
Optional Items	
Application package	MID parts certificate, custody transfer High temperature version, 150°C/302°F process Heartbeat Verification + Monitoring
Mounted accessories	Overvoltage protection Prepared for sealing (custody transfer)
Accessories enclosed	Weld-in adapter Flushing ring

Cerabar PMP51B

Main feature	Specification / Options
Ex-Approval	Ratings for application in hazardous areas are to be obtained from the applicable Ex Certificates.
Output	2-wire 4-20mA 2-wire 4-20mA HART
Firmware	01.00.zz, HART 7, DevRev01
Display	without Segment display w/o buttons (with or without Bluetooth)
Housing	Single compartment; Alu, coated *Note: Vibration class B Dual compartment; Alu, coated **Note: Not for use on open deck *Note: Vibration class B **Note: Not for use on open deck
Electrical connection	Cable Gland Thread Plug (M12, HAN7D or Valve ISO4400) Cable up to 5m
Pressure type	Gauge Absolute
Application	Standard Diaphragm seal
Diaphragm Seal Type	Without Compact Capillary
Sensor range	Up to 400bar/40MPa/6000psi
Process connection	Flange Thread (except <1/2") Oval flange adapter
Membrane Material	As per process requirement
Fill Fluid	As per process and/or environmental requirement
Optional Items	
Membrane coating	As per process and/or environmental requirement
Mounted accessories	Prepared for sealing (custody transfer)
Accessories enclosed	Weld-in adapter Flushing ring

Cerabar PMP71B

Main feature	Specification / Options
Ex-Approval	Ratings for application in hazardous areas are to be obtained from the applicable Ex Certificates.
Output	2-wire 4-20mA HART
Firmware	01.00.zz, HART 7, DevRev01

Display	without Segment display w/o buttons (with or without Bluetooth) Graphic display touch control (with or without Bluetooth)
Housing	Single compartment; Alu, coated *Note: Vibration class B Dual compartment; Alu, coated **Note: Not for use on open deck Dual compartment; 316L *Note: Vibration class B - **Note: Not for use on open deck
Electrical connection	Cable Gland Thread Plug (M12, HAN7D or Valve ISO4400) Cable up to 5m
Pressure type	Gauge Absolute
Application	Standard Diaphragm seal
Diaphragm Seal Type	Without Compact Capillary
Sensor range	Up to 700bar/70MPa/10500psi
Process connection	Flange Thread (except <1/2" if housing single compartment; Alu, coated or <1 1/2" for all other housing options) Pancake Barrel flange
Membrane Material	As per process requirement
Fill Fluid	As per process and/or environmental requirement
Optional Items	
Membrane coating	As per process and/or environmental requirement
Application package	MID parts certificate, custody transfer High temperature version, 150°C/302°F process Heartbeat Verification + Monitoring
Mounted accessories	Overvoltage protection Prepared for sealing (custody transfer)
Accessories enclosed	Weld-in adapter Flushing ring

Deltabar PMD55B

Main feature	Specification / Options
Ex-Approval	Ratings for application in hazardous areas are to be obtained from the applicable Ex Certificates.
Output	2-wire 4-20mA HART
Firmware	01.00.zz, HART 7, DevRev01
Display	Without Segment display w/o buttons (with or without Bluetooth)
Housing	Single compartment; Alu, coated *Note: Vibration class B Dual compartment; Alu, coated **Note: Not for use on open deck Dual compartment; 316L *Note: Vibration class B - **Note: Not for use on open deck
Electrical connection	Cable Gland Thread Plug (M12, HAN7D or Valve ISO4400) Cable up to 5m

Pressure type	Differential Gauge
Application	Standard Diaphragm seal
Sensor range	Up to 40bar/4MPa/600psi
Process connection	NPT1/4-18 IEC61518 UNF7/16-20 NPT1/4-18 DIN19213 M10 NPT1/4-18 DIN19213 M12 RC1/4" mounting UNF7/16-20 Coplanar compatible
Membrane Material	As per process requirement
Fill Fluid	As per process and/or environmental requirement
Seal	As per process requirement
Optional Items	
Extended Nominal Pressure PN	Up to 250bar/25MPa/3750psi
Mounted accessories	Protective clamp, maritime environment Prepared for sealing (custody transfer)
Accessories enclosed	Calibration fitting - 5/16"-24 UNF

Deltabar PMD75B

Main feature	Specification / Options
Ex-Approval	Ratings for application in hazardous areas are to be obtained from the applicable Ex Certificates.
Output	2-wire 4-20mA HART
Firmware	01.00.zz, HART 7, DevRev01
Display	Without Segment display w/o buttons (with or without Bluetooth) Graphic display touch control (with or without Bluetooth)
Housing	Single compartment; Alu, coated *Note: Vibration class B Dual compartment; Alu, coated **Note: Not for use on open deck *Note: Vibration class B Dual compartment; 316L - **Note: Not for use on open deck Dual compartment L-shape; Alu, coated **Note: Not for use on open deck
Electrical connection	Cable Gland Thread Plug (M12, HAN7D or Valve ISO4400) Cable up to 5m
Pressure type	Differential Gauge Absolute
Application	Standard Diaphragm seal
Sensor range	Up to 250bar/25MPa/3750psi
Installation	Horizontal impulse line Vertical impulse line Universal side flange Bottom Process connection
Process connection	NPT1/4-18 IEC61518 UNF7/16-20 NPT1/4-18 DIN19213 M10 NPT1/4-18 DIN19213 M12 RC1/4" mounting UNF7/16-20

	Coplanar compatible
Membrane Material	As per process requirement
Fill Fluid	As per process and/or environmental requirement
Seal	As per process requirement
Optional Items	
Membrane coating	As per process and/or environmental requirement
Application Package	Heartbeat Verification + Monitoring
Extended Nominal Pressure PN	Up to 420bar/42MPa/6300psi
Mounted accessories	Overvoltage protection Protective clamp, maritime environment Prepared for sealing (custody transfer)
Accessories enclosed	Calibration fitting - 5/16"-24 UNF

Deltabar PMD78B

Main feature	Specification / Options
Ex-Approval	Ratings for application in hazardous areas are to be obtained from the applicable Ex Certificates.
Output	2-wire 4-20mA HART
Firmware	01.00.zz, HART 7, DevRev01
Display	without Segment display w/o buttons (with or without Bluetooth) Graphic display touch control (with or without Bluetooth)
Housing	Dual compartment; Alu, coated *Note: Vibration class B **Note: Not for use on open deck Dual compartment; 316L Dual compartment L-shape; Alu, coated **Note: Not for use on open deck
Electrical connection	Cable Gland Thread Plug (M12, HAN7D or Valve ISO4400) Cable up to 5m
Pressure type	Differential Gauge Absolute
Application	Diaphragm seal one side Diaphragm seal both side
Sensor range	Up to 40bar/4MPa/600psi
Design HP Side	Transmitter horizontal; temp. isolator short Transmitter vertical; temp. isolator short Capillary
Design LP Side	NPT1/4-18 IEC61518 UNF7/16-20 RC1/4" mounting UNF7/16-20 Blind flange with vent filter, for gauge pressure Capillary
Process connection	W/o Flange Pancake Barrel flange
Membrane Material	As per process requirement
Fill Fluid	As per process and/or environmental requirement
Seal	As per process requirement
Optional Items	

Membrane coating	As per process and/or environmental requirement
Application Package	Heartbeat Verification + Monitoring
Extended Nominal Pressure PN	Up to 250bar/25MPa/375psi
Mounted accessories	Overtoltage protection Prepared for sealing (custody transfer)
Accessories enclosed	Flushing ring

Approval conditions

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 classification of ships Pt.4 Ch.9 Control and monitoring systems.

Place of production

Endress+Hauser SE+Co. KG
 Hauptstr. 1
 79689 Maulburg
 Germany

Endress+Hauser (Suzhou) Automation Instrumentation Co., Ltd.
 Suzhou Industrial Park
 491 Su Hong Zhong Road No.
 Jiangsu Province
 Suzhou 215021, China

Type Approval documentation

E+H Reference Document: (Rev. 1.0, dated 09.09.2021)
 'Documents for Type Approval Cerabar PMC51B, PMP51B, PMC71B, PMP71B; Deltabar PMD55B, PMD75B, PMD78B'
 Product description: Cerabar PMC51B, Rev. 02 (13.02.2024)
 Product description: Cerabar PMC71B, Rev. 01 (21.10.2022)
 Product description: Cerabar PMP51B, Rev. 03 (13.02.2024)
 Product description: Cerabar PMP71B, Rev. 01 (21.10.2022)
 Product description: Deltabar PMD55B, Rev. 02 (13.02.2024)
 Product description: Deltabar PMD75B, Rev. 01 (21.10.2022)
 Product description: Deltabar PMD78B, Rev. 01 (21.10.2022)
 Konfigurationsübersicht / Product Description Cerabar PMP51B (02.02.2024)
 Test report: paconsult no. DE20-00061, Rev. 1, dated 2021-10-20
 Test report: paconsult no. 22DE-00734, Rev. 0, dated 2022-10-20
 Type approval assessment report issued at Augsburg on 2021-04-19
 Type approval assessment report issued at Shanghai on 2024-09-26

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.

Marking of product

The products to be marked with:
 - manufacturer name
 - model name
 - serial number
 - power supply ratings

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



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- 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 the certificate.

END OF CERTIFICATE