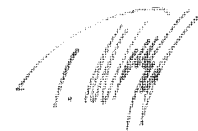


Type Approval Certificate

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.

Manufacturer	Endress+Hauser SE + Co. KG
Address	Hauptstrasse 1, 79689 Maulburg, Germany
Type	Pressure Transmitter
Description	Differential pressure measurement and pressure measurement Types Cerabar M PMC51B, PMP51B Cerabar S PMC71B, PMP71B Deltabar M PMD55B Deltabar S PMD75B, PMD78B
Trade Name	Cerabar M, Cerabar S, Deltabar M and Deltabar S
Application	Marine, offshore and industrial applications for use in environmental categories ENV1, ENV2, ENV3, ENV4 (single/dual compartment, alu, coated only) and ENV5 (stainless steel housing 316L only) as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 – 2020.
Specified Standard	Manufacturer's specification EN 61010-1: 2010 IACS unified requirements E10 (Rev.8 Feb 2021)



Thorsten Wolff

Electrical & Control - Senior Specialist to
Lloyd's Register EMEA
A member of the Lloyd's Register group

71 Fenchurch Street, London, EC3M 4BS, United
Kingdom

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Type Approval Certificate

Ratings

Refer to the Appendix for further details

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

Previous Version:

This certificate supersedes certificate number LR21442758TA-01 issued on 27 October 2022 which is hereby cancelled.

The Design Appraisal Document HPC2062019-24/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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Appendix

RATINGS

Cerabar PMC51B

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: Not for use on open deck; 4g Vibration test performed Dual compartment; Alu, coated Note: Not for use on open deck; 4g Vibration test performed
Electrical	Cable Gland
Connection:	Thread Plug (M12, HAN7D or Valve ISO4400) Cable up to 5m
Pressure type:	Gauge Absolute
Sensor range:	Up to 40bar/4MPa/600psi
Process	Flange
Connection:	Thread (except <1/2")
Seal:	As per process requirement

Optional Items

Mounted	Prepared for sealing (custody transfer)
accessories:	
Accessories	Weld-in adapter
Enclosed:	Flushing ring

Cerabar PMC71B

Ex-Approval:	Ratings for application in hazardous areas are to be obtained from the applicable Ex Certificates.
Output:	2-wire 4-20mA HART
Firmware:	201.00.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: Not for use on open deck; 4g Vibration test performed Dual compartment; Alu, coated Note: Not for use on open deck; 4g Vibration test performed Dual compartment; 316L
Electrical	Cable Gland



connection: Thread
Plug (M12, HAN7D or Valve ISO4400)
Cable up to 5m
Pressure type: Gauge
Absolute
Sensor range: Up to 40bar/4MPa/600psi
Process Flange
connection: 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 MID parts certificate, custody transfer
Package: High temperature version, 150oC/302oF process
Heartbeat Verification + Monitoring
Mounted Overvoltage protection
accessories: Prepared for sealing (custody transfer)
Accessories Weld-in adapter
enclosed: Flushing ring

Cerabar PMP51B

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: Not for use on open deck; 4g Vibration test performed
Dual compartment; Alu, coated Note: Not for use on open deck; 4g Vibration test performed
Electrical Cable Gland
Connection: Thread
Plug (M12, HAN7D or Valve ISO4400)
Cable up to 5m
Pressure type: Gauge
Absolute
Application: Standard
Diaphragm seal
Diaphragm Without
Seal Type: Compact
Capillary



Sensor range: Up to 400bar/40MPa/6000psi
Process Flange
connection: Thread (except <1/2")
Oval flange adapter
Membrane As per process requirement
Material:
Fill Fluid: As per process and/or environmental requirement

Optional Items

Membrane As per process and/or environmental requirement
coating:
Mounted Prepared for sealing (custody transfer)
accessories:
Accessories Weld-in adapter
enclosed: Flushing ring

Cerabar PMP71B

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: Not for use on open deck; 4g Vibration test performed
Dual compartment; Alu, coated Note: Not for use on open deck; 4g Vibration test performed
Dual compartment; 316L
Electrical Cable Gland
connection: Thread
Plug (M12, HAN7D or Valve ISO4400)
Cable up to 5m
Pressure type: Gauge
Absolute
Application: Standard
Diaphragm seal
Diaphragm Without
Seal Type: Compact
Capillary
Sensor range: Up to 700bar/70MPa/10500psi
Process Flange
connection: Thread (except <1/2" if housing single compartment; Alu, coated or <1 1/2" for all other housing)

	options)
	Pancake
	Barrel flange
Membrane	As per process requirement
Material:	
Fill Fluid:	As per process and/or environmental requirement

Optional Items

Membrane	As per process and/or environmental requirement
coating:	
Application	MID parts certificate, custody transfer
Package:	High temperature version, 150oC/302oF process
	Heartbeat Verification + Monitoring
Mounted	Overvoltage protection
accessories:	Prepared for sealing (custody transfer)
Accessories	Weld-in adapter
enclosed:	Flushing ring

Deltabar PMD55B

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: Not for use on open deck; 4g Vibration test performed
	Dual compartment; Alu, coated Note: Not for use on open deck; 4g Vibration test performed
Electrical	Cable Gland
connection:	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
Installation:	Horizontal impulse line
	Vertical impulse line
	Universal side flange
	Bottom Process connection
Process	NPT1/4-18 IEC61518 UNF7/16-20

connection: NPT1/4-18 DIN19213 M10
 NPT1/4-18 DIN19213 M12
 RC1/4" mounting UNF7/16-20
 Coplanar compatible
 Membrane As per process requirement
 Material:
 Fill Fluid: As per process and/or environmental requirement
 Seal: As per process requirement

Optional Items

Extended Up to 250bar/25MPa/3750psi
 Nominal
 Pressure PN:
 Mounted Protective clamp, maritime environment
 accessories: Prepared for sealing (custody transfer)
 Accessories Calibration fitting - 5/16"-24 UNF
 Enclosed:

Deltabar PMD75B

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: Not for use on open deck; 4g Vibration test performed
 Dual compartment; Alu, coated Note: Not for use on open deck; 4g Vibration test performed
 Dual compartment; 316L
 Dual compartment L-shape; Alu, coated Note: Not for use on open deck
 Electrical Cable Gland
 connection: 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	NPT1/4-18 IEC61518 UNF7/16-20
Connection:	NPT1/4-18 DIN19213 M10 NPT1/4-18 DIN19213 M12 RC1/4" mounting UNF7/16-20 Coplanar compatible
Membrane	As per process requirement
Material:	
Fill Fluid:	As per process and/or environmental requirement
Seal:	As per process requirement

Optional Items

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

Deltabar PMD78B

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: Not for use on open deck; 4g Vibration test performed Dual compartment; 316L Dual compartment L-shape; Alu, coated Note: Not for use on open deck
Electrical	Cable Gland
Connection:	Thread

	Plug (M12, HAN7D or Valve ISO4400)
	Cable up to 5m
Application:	Diaphragm seal one side
	Diaphragm seal both side
Sensor range:	Up to 40bar/4MPa/600psi
Design HP Side:	Transmitter horiz.; 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/3750psi
Mounted accessories:	Overvoltage protection
	Prepared for sealing (custody transfer)
Accessories:	Flushing ring
Enclosed:	