



CERTIFICATE NUMBER 21-2157940-PDA
EFFECTIVE DATE 27-October-2021
EXPIRATION DATE 26-October-2026
ABS TECHNICAL OFFICE Singapore Engineering Services

CERTIFICATE OF Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

ENDRESS & HAUSER SE & CO. KG

located at

HAUPTSTR. 1, ,D-79689 MAULBURG, GERMANY

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product Pressure Transmitter

Model Cerabar M – PMC51B, PMP51B, Cerabar S – PMC71B, PMP71B, Deltabar M – PMD55B, Deltabar S – PMD75B, PMD78B

This Product Design Assessment (PDA) Certificate remains valid until 26-October-2026 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the “Intended Service” details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau of Shipping

Vibin Chandrabose, Senior Engineer

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer’s standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement

ENDRESS & HAUSER SE & CO. KG

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Tier: 2 - PDA Issued

Product: Pressure Transmitter
Model: Cerabar M – PMC51B, PMP51B
Cerabar S – PMC71B, PMP71B
Deltabar M – PMD55B
Deltabar S – PMD75B, PMD78B

Endorsements:

Intended Service:

Absolute, gauge, and differential pressure measurement.

Description:

Digital pressure transmitter for measurement in gases, steam or liquids continuous level, flow, and differential pressure measurement.

Rating:

1) PMC51B

Absolute Pressure Range: 0...0.1 bar to 0...40 bar

Gauge Pressure Range: -0.1...0.1 bar to -1...40 bar

Process Temperature Range: -40°C to 100°C

Supply Voltage: 10.5 to 35 VDC (Ex d, Ex e, non-EX); 10.5 to 30 VDC (Ex i)

Output: 4 to 20 mA, 2 -wire or 4 to 20 mA, 2 -wire (HART)

Degree of Protection: IP 66/68

2) PMP51B

Absolute Pressure Range: 0...0.4 bar to 0...400 bar

Gauge Pressure Range: -0.4...0.4 bar to -1...400 bar

Process Temperature Range: -70°C to 400°C (with diaphragm seal)

Supply Voltage: 10.5 to 35 VDC (Ex d, Ex e, non-EX); 10.5 to 30 VDC (Ex i)

Output: 4 to 20 mA, 2 -wire or 4 to 20 mA, 2 -wire (HART)

Degree of Protection: IP 66/68

3) PMC71B

Absolute Pressure Range: 0...0.1 bar to 0...40 bar

Gauge Pressure Range: -0.1...0.1 bar to -1...40 bar

Process Temperature Range: -40°C to 125°C

Supply Voltage: 10.5 to 35 VDC (Ex d, Ex e, non-EX); 10.5 to 30 VDC (Ex i)

Output: 4 to 20 mA, 2 -wire (HART)

Degree of Protection: IP 66/68

4) PMP71B

Absolute Pressure Range: 0...0.4 bar to 0...700 bar

Gauge Pressure Range: -0.4...0.4 bar to -1...700 bar

Process Temperature Range: -70°C to 400°C (with diaphragm seal)

Supply Voltage: 10.5 to 35 VDC (Ex d, Ex e, non-EX); 10.5 to 30 VDC (Ex i)

Output: 4 to 20 mA, 2 -wire (HART)

Degree of Protection: IP 66/68

5) PMD55B

Pressure Range: -0.03...0.03 bar to -40...40 bar

Process Temperature Range: -40°C to 110°C

Supply Voltage: 10.5 to 35 VDC (Ex d, Ex e, non-EX); 10.5 to 30 VDC (Ex i)

Output: 4 to 20 mA, 2 -wire (HART)

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Degree of Protection: IP 66/68

6) PMD75B

Pressure Range: -0.01...0.01 bar to -40...40 bar

Process Temperature Range: -40°C to 110°C

Supply Voltage: 10.5 to 35 VDC (Ex d, Ex e, non-EX); 10.5 to 30 VDC (Ex i)

Output: 4 to 20 mA, 2 -wire (HART)

Degree of Protection: IP 66/68

7) PMD78B

Pressure Range: -0.1...0.1 bar to -40...40 bar

Process Temperature Range: -70°C to 400°C (with diaphragm seal)

Supply Voltage: 10.5 to 35 VDC (Ex d, Ex e, non-EX); 10.5 to 30 VDC (Ex i)

Output: 4 to 20 mA, 2 -wire (HART)

Degree of Protection: IP 66/68

Ex ratings of all models to be referenced to certificates:

- KIWA 20ATEX0031 X
- IECEx KIWA 20.0011X
- CSA80066208
- SEV 20 ATEX 0387 X

Service Restriction:

1. Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.
2. ATEX certified equipment is not to be installed in hazardous areas on U.S vessels unless it can be proved to have been tested to the applicable IEC 60079 series standards by an independent laboratory accepted by the U.S coast Guard. USCG notice 01-12 (February 7, 2012).
3. The sensing devices are to be fitted with valves or arranged such that they may be isolated and removed without emptying tanks or without impairing the integrity of pressurized systems.

Comments:

1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
2. Each application and installation are to be specifically approved in conjunction with the relevant system, locations and environmental conditions.

Notes/Drawing/Documentation:

- Dwg No.: TI01512PEN_0321, Technical Information PMD78B, Rev: 1, Pg: 68
- Dwg No.: TI01511PEN_0321, Technical Information PMD75B, Rev: 1, Pg: 56
- Dwg No.: TI01510PEN_0321, Technical Information PMD55B, Rev: 1, Pg: 48
- Dwg No.: TI01509PEN_0321, Technical Information PMP71B, Rev: 1, Pg: 76
- Dwg No.: TI01508PEN_0321, Technical Information PMP51B, Rev: 1, Pg: 68
- Dwg No.: TI01507PEN_0321, Technical Information PMC71B, Rev: 1, Pg: 52
- Dwg No.: TI01506PEN_0321, Technical Information PMC51B, Rev: 1, Pg: 48
- Dwg No.: Electronic Dwg, Dwg electronics, Rev: 1, Pg: 82
- Dwg No.: Software_Architecture, Software Architecture, Rev: 1, Pg: 66
- Dwg No.: Platform_overview, Dwg platform overview, Rev: 1, Pg: 1
- Dwg No.: ISO9001, ISO9001 certificate, Rev: 1, Pg: 2
- Dwg No.: 20ATEX 0387X_Issue_0, ATEX certificate, Rev: 1, Pg: 5
- Dwg No.: 20ATEX0031X_Issue_1, ATEX certificate, Rev: 1, Pg: 5
- Dwg No.: SEV_20.0009X_Issue_1, IECEx certificate, Rev: 1, Pg: 8
- Dwg No.: KIWA_20.0011_issue_0, IECEx certificate, Rev: 1, Pg: 6
- Dwg No.: CoC_80066208_EN, CSA Ex certificate - Us and Canada, Rev: 1, Pg: 33

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Dwg No.: EMC Testmatrix - Cerabar, EMC Testmatrix - Cerabar EVO2.0, Rev: 1, Pg: 1

Dwg No.: EMC Testmatrix - Deltabar, EMC Testmatrix - Deltabar EVO2.0, Rev: 1, Pg: 1

Dwg No.: HE_01459_01.21, Manufacturers declaration salt mist test, Rev: 1, Pg: 1

Dwg No.: HE_01386_01.20, Manufacturers declaration salt mist test, Rev: 1, Pg: 1

Dwg No.: Urkunde DAkkS EMV, DAkkS Accreditation EMC Lab Endress+Hauser SE+CO.KG, Rev: 1, Pg: 13

Report No.: DE20-00061-BE-PMCPMPMD, Testreport Vibration and Climate Test, Laboratory: PAConsult GmbH, Dated: 2021-03, Rev: 1, Pg: 88

Report No.: 970007579, Testreport IP rating, Laboratory: -, Dated: 2019-10, Rev: 1, Pg: 14

Report No.: 970007275, Testreport IP rating, Laboratory: -, Dated: 2019-06, Rev: 1, Pg: 27

Report No.: 970007274, Testreport IP rating, Laboratory: -, Dated: 2019-06, Rev: 1, Pg: 29

Report No.: 970007043, Testreport IP rating, Laboratory: -, Dated: 2019-01, Rev: 1, Pg: 9

Report No.: 970007039, Testreport IP rating, Laboratory: -, Dated: 2019-01, Rev: 1, Pg: 12

Report No.: 970007007-A, Testreport IP rating, Laboratory: -, Dated: 2018-12, Rev: 1, Pg: 6

Report No.: 970007004-A, Testreport IP rating, Laboratory: -, Dated: 2018-12, Rev: 1, Pg: 8

Report No.: 961003337-A, Testreport IP rating, Laboratory: -, Dated: 2019-11, Rev: 1, Pg: 28

Report No.: 19-11304B-BE-FTL, Testreport salt mist test, Laboratory: PAConsult GmbH, Dated: 2019-03, Rev: 1, Pg: 15

Report No.: 970002314, Testreport flammability remote cable, Laboratory: FES Testcenter, Dated: 2010-11, Rev: 1, Pg: 2

Report No.: 970002203, Testreport flammability remote cable, Laboratory: FES Testcenter, Dated: 2010-09, Rev: 1, Pg: 2

Report No.: 2658_TR_SCMVER, Testreport software tests, Laboratory: -, Dated: 2020-09, Rev: 1, Pg: 12

Report No.: 2658_TR_MS-Vesta, Testreport software tests, Laboratory: -, Dated: 2020-09, Rev: 1, Pg: 29

Report No.: 2658_TR_MS-TopLevel, Testreport software tests, Laboratory: -, Dated: 2020-09, Rev: 1, Pg: 49

Report No.: 2658_TR_MS-Supervision, Testreport software tests, Laboratory: -, Dated: 2020-09, Rev: 1, Pg: 16

Report No.: 2658_TR_MS-Standard, Testreport software tests, Laboratory: -, Dated: 2020-09, Rev: 1, Pg: 14

Report No.: 2658_TR_MS-SensorInter, Testreport software tests, Laboratory: -, Dated: 2020-09, Rev: 1, Pg: 12

Report No.: 2658_TR_MS-Sens_Press-01, Testreport software tests, Laboratory: -, Dated: 2020-09, Rev: 1, Pg: 20

Report No.: 2658_TR_MS-SDIServer, Testreport software tests, Laboratory: -, Dated: 2020-09, Rev: 1, Pg: 10

Report No.: 2658_TR_MS-Residual, Testreport software tests, Laboratory: -, Dated: 2020-07, Rev: 1, Pg: 14

Report No.: 2658_TR_MS-Heartbeat, Testreport software tests, Laboratory: -, Dated: 2020-09, Rev: 1, Pg: 13

Report No.: 2658_TR_MS-HART, Testreport software tests, Laboratory: -, Dated: 2020-09, Rev: 1, Pg: 18

Report No.: 2658_TR_MS-Display, Testreport software tests, Laboratory: -, Dated: 2020-09, Rev: 1, Pg: 8

Report No.: 2658_TR_MS-Current, Testreport software tests, Laboratory: -, Dated: 2020-09, Rev: 1, Pg: 14

Report No.: 2658_TR_MS-01, Testreport software tests, Laboratory: -, Dated: 2020-09, Rev: 1, Pg: 35

Report No.: 072994.159.21_PMC71B_V1.0, EMC Testreport - PMC71B, Laboratory: MeßTechnikNord GmbH, Dated: 2021-07, Rev: 1, Pg: 26

Report No.: 072994.158.21_PMD55B_V1.0, EMC Testreport - PMD55B, Laboratory: MeßTechnikNord GmbH, Dated: 2021-07, Rev: 1, Pg: 25

Report No.: 072994.157.21_PMC51B_V1.0, EMC Testreport - PMC51B, Laboratory: MeßTechnikNord GmbH, Dated: 2021-07, Rev: 1, Pg: 25

Report No.: 072994.155.21_PMP51B_V1.0, EMC Testreport - PMP51B, Laboratory: MeßTechnikNord GmbH, Dated: 2021-07, Rev: 1, Pg: 25

Report No.: 072994.154.21_PMP71B_V1.0, EMC Testreport - PMP71B, Laboratory: MeßTechnikNord GmbH, Dated: 2021-07, Rev: 1, Pg: 26

Report No.: 072994.152.21_PMD75B_V1.0, EMC Testreport - PMD75B u. PMD78B, Laboratory: MeßTechnikNord GmbH, Dated: 2021-07, Rev: 1, Pg: 27

Report No.: 970007977_MB, EMC Testreport - PMP71B, Laboratory: E&C Testlab, Dated: 2020-05, Rev: 1, Pg: 61

Report No.: 970007964_MB, EMC Testreport - PMP51B, Laboratory: E&C Testlab, Dated: 2020-05, Rev: 1, Pg: 61

Report No.: 970007955_MB, EMC Testreport - PMD75B u. PMD78B, Laboratory: E&C Testlab, Dated: 2020-05, Rev: 1, Pg: 62

Report No.: 970007948_MB, EMC Testreport - PMC71B, Laboratory: E&C Testlab, Dated: 2020-05, Rev: 1, Pg: 52

Report No.: 970007934_MB, EMC Testreport - PMC71B, Laboratory: E&C Testlab, Dated: 2020-05, Rev: 1, Pg: 62

Report No.: 970007925_MB, EMC Testreport - PMC51B, Laboratory: E&C Testlab, Dated: 2020-05, Rev: 1, Pg: 51

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Report No.: 970007916_MB, EMC Testreport - PMP71B, Laboratory: E&C Testlab, Dated: 2020-05, Rev: 1, Pg: 50
Report No.: 970007903_MB, EMC Testreport - PMP51B, Laboratory: E&C Testlab, Dated: 2020-05, Rev: 1, Pg: 51
Report No.: 970007877_MB, EMC Testreport - PMD55B, Laboratory: E&C Testlab, Dated: 2020-05, Rev: 1, Pg: 50
Report No.: 970007874_MB, EMC Testreport - PMD55B, Laboratory: E&C Testlab, Dated: 2020-05, Rev: 1, Pg: 50
Report No.: 970007871_MB, EMC Testreport - PMD75B u. PMD78B, Laboratory: E&C Testlab, Dated: 2020-05, Rev: 1, Pg: 51
Report No.: 970007846_MB, EMC Testreport - PMC51B, Laboratory: E&C Testlab, Dated: 2020-05, Rev: 1, Pg: 52
Report No.: 970008341_MB, EMC Testreport - PMD75B u. PMD78B, Laboratory: -, Dated: 2021-04, Rev: 1, Pg: 16
Report No.: 970008340_MB, EMC Testreport - PMD75B u. PMD78B, Laboratory: -, Dated: 2021-04, Rev: 1, Pg: 16
Report No.: 970008339_MB, EMC Testreport - PMC71B, Laboratory: -, Dated: 2021-04, Rev: 1, Pg: 16
Report No.: 970008338_MB, EMC Testreport - PMC51B, Laboratory: -, Dated: 2021-04, Rev: 1, Pg: 16
Report No.: 970008337_MB, EMC Testreport - PMP71B, Laboratory: -, Dated: 2021-04, Rev: 1, Pg: 16
Report No.: 970008336_MB, EMC Testreport - PMC51B, Laboratory: -, Dated: 2021-04, Rev: 1, Pg: 16
Report No.: 970008335_MB, EMC Testreport - PMP51B, Laboratory: -, Dated: 2021-04, Rev: 1, Pg: 16
Report No.: 970008011_MB_01, EMC Testreport - PMP51B, Laboratory: -, Dated: 2020-11, Rev: 1, Pg: 69
Report No.: AD40000PMD78B, Pressure test - PMD78B, Laboratory: -, Dated: 2021-05, Rev: 1, Pg: 9
Report No.: AA700000PMD75B, Pressure test - PMD75B, Laboratory: -, Dated: 2021-06, Rev: 1, Pg: 9
Report No.: AA400000PMP51B, Pressure test - PMP51B, Laboratory: -, Dated: 2021-06, Rev: 1, Pg: 9
Report No.: AA100000PMP51B, Pressure test - PMP51B, Laboratory: -, Dated: 2021-06, Rev: 1, Pg: 9
Report No.: AA400000PMD75B, Pressure test - PMP51B, Laboratory: -, Dated: 2021-06, Rev: 1, Pg: 9
Report No.: AA400000PMD55B, Pressure test - PMP51B, Laboratory: -, Dated: 2021-06, Rev: 1, Pg: 9
Report No.: AA400000PMC71B, Pressure test - PMP51B, Laboratory: -, Dated: 2021-06, Rev: 1, Pg: 9
Report No.: AA400000PMC51B, Pressure test - PMP51B, Laboratory: -, Dated: 2021-06, Rev: 1, Pg: 9
Report No.: AA3000PMD78B, Pressure test - PMP51B, Laboratory: -, Dated: 2021-06, Rev: 1, Pg: 9
Report No.: AA3000PMD55B, Pressure test - PMP51B, Laboratory: -, Dated: 2021-06, Rev: 1, Pg: 9
Report No.: AA2000PMP71B, Pressure test - PMP51B, Laboratory: -, Dated: 2021-06, Rev: 1, Pg: 9
Report No.: AA2000PMC71B, Pressure test - PMP51B, Laboratory: -, Dated: 2021-05, Rev: 1, Pg: 9
Report No.: AA2000PMC51B, Pressure test - PMP51B, Laboratory: -, Dated: 2021-06, Rev: 1, Pg: 9
Report No.: 0A700000PMP71B, Pressure test - PMP51B, Laboratory: -, Dated: 2021-06, Rev: 1, Pg: 9
Report No.: S1001201199, Functional test - PMD55B, Laboratory: -, Dated: 2021-01, Rev: 1, Pg: 2
Report No.: S1001301199, Functional test - PMD55B, Laboratory: -, Dated: 2021-01, Rev: 1, Pg: 2
Report No.: S1000B01196, Functional test - PMP51B, Laboratory: -, Dated: 2021-01, Rev: 1, Pg: 2
Report No.: S2000401196, Functional test - PMP51B, Laboratory: -, Dated: 2021-02, Rev: 1, Pg: 2
Report No.: S100050195, Functional test - PMC51B, Laboratory: -, Dated: 2021-02, Rev: 1, Pg: 2
Report No.: S1000601195, Functional test - PMC51B, Laboratory: -, Dated: 2021-01, Rev: 1, Pg: 2
Report No.: S100010119B, Functional test - PMD78B, Laboratory: -, Dated: 2021-02, Rev: 1, Pg: 2
Report No.: S100020119B, Functional test - PMD78B, Laboratory: -, Dated: 2021-01, Rev: 1, Pg: 2
Report No.: S100090119A, Functional test - PMD75B, Laboratory: -, Dated: 2021-02, Rev: 1, Pg: 2
Report No.: S1000A0119A, Functional test - PMD75B, Laboratory: -, Dated: 2021-01, Rev: 1, Pg: 2
Report No.: S1001001198, Functional test - PMP71B, Laboratory: -, Dated: 2021-01, Rev: 1, Pg: 2
Report No.: S1000F01198, Functional test - PMP71B, Laboratory: -, Dated: 2021-01, Rev: 1, Pg: 2
Report No.: S1000801197, Functional test - PMC71B, Laboratory: -, Dated: 2021-02, Rev: 1, Pg: 2
Report No.: S1000901197, Functional test - PMC71B, Laboratory: -, Dated: 2021-02, Rev: 1, Pg: 2

Terms of Validity:

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STANDARDS

ABS Rules:

ABS Rules for Conditions of Classification (2021) – 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

Rules for Building and Classing Marine Vessels Rules: 4-6-2/9.11.2, 4-6-2/9.11.3, 4-8-3/1.7, 4-8-3/1.11.1, 4-8-3/1.17, 4-8-3/13, 4-9-9/13.1, 4-9-9/15.7 Table 1

ABS Rules for Conditions of Classification (2021) – Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following:

Rules for Building and Classing Mobile Offshore Units: 4-2-1/11.27.2, 4-3-1/11, 4-3-1/15, 4-3-1/17.1, 4-3-3/9.1.1, 4-3-3/9.1.2, 4-3-3/9.3.1, 4-3-3/9.3.2

ABS Rules for Conditions of Classification (2021) – High Speed Craft 1-1-4/11.9, 1-1-A2, 1-1-A3, which cover the following:

Rules for Building and Classing High Speed-Craft: 4-4-1/9.17.2, 4-4-1/9.17.3, 4-6-1/11, 4-6-2/15, 4-6-1/17, 4-6-3/9.1.1, 4-6-3/9.3.1

National:

NA

International:

IACS UR E10 Rev.7

Government:

NA

EUMED:

NA

OTHERS:

NA