



CERTIFICATE NUMBER	19-1873111-1-PDA
EFFECTIVE DATE	01-Feb-2022
EXPIRY DATE	18-Jul-2024
ABS TECHNICAL OFFICE	Houston ESD - Piping

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: Level Transmitter
Model: FMR60, FMR62, FMR67
Endorsements:
Tier: 2 - PDA Issued

This Product Design Assessment (PDA) Certificate remains valid until 18/Jul/2024 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
<i>Soheni Haque</i>
Soheni Haque,Engineer/Consultant

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 (2010)

ENDRESS & HAUSER SE & CO. KG

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Tier: 2 - PDA Issued

Product: Level Transmitter
Model: FMR60, FMR62, FMR67
Endorsements:

Intended Service:

Radar based level detectors used for contactless continuous measurement of liquid and solid media in explosion hazardous areas.

Description:

Transmitter with horn antenna or parabolic aerial, flange-mounted.

Rating:

Power supply: 16 to 35V DC; Output: analogue 4...20mA with HART protocol;

Degree of protection: IP 65 (housing), IP 68 (antenna);

Certified: Ex ia IIC, T* Ta = -40°C to +80°C; Entity XA01615F; Type 4X/6P, IP66/68; Ex ia/db [ia Ga] IIC T* Ga/Gb Ta = -40°C to +80°C; Entity XA01616F; Type 4X/6P, IP66/68 (FM17US0187X);

Ex ia IIC, T* Ta = -40°C to +80°C; Entity XA01615F; Type 4X/6P, IP66/68; Ex ia/db [ia Ga] IIC T* Ga/Gb Ta = -40°C to +80°C; Entity XA01616F; Type 4X/6P, IP66/68 (FM17CA0099X);

Ex ia/db [ia Ga] IIC T6...T3 Ga/Gb: Class I, Zone 0/1, AEx ia/db [ia Ga] IIC T6...T3 Ga/Gb: Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G, Class III (CSA70137829);

Ex ia IIC T6 Ga/Gb, Ex ia/db [ia Ga] IIC T6 Ga/Gb, Ex ia/ic [ia Ga] IIC T6 Ga/Gb/Gc Ex ia/ec [ia Ga] IIC T6 Ga/Gb/Gc, Ex ec IIC T6 Gc, Ex ic IIC T6 Gc, Ex ia III C T85 °C Da/Db, Ex ta/tb III C T85 °C Da/Db, Ex ta [ia Da] IIC T500 125 °C Da (IECEX IBE 16.0035X);

II 1G Ex ia IIC T6 Ga; II 1/2G Ex ia IIC T6 Ga/Gb; II 1/2G Ex ia/db [ia Ga] IIC T6 Ga/Gb; II 1/2/3G Ex ia/ic [ia Ga] IIC T6 Ga/Gb/Gc; II 1D Ex ta IIIC Tao 125 °C Da resp.; II 1D Ex ta IIIC T85 °C Da; II 1/2D Ex ta/tb IIIC T85 °C Da/Db; II 3G Ex ec IIC T6 Gc; II 3G Ex ic IIC T6 Gc; II 1/2/3G Ex ia/ec [ia Ga] IIC T6 Ga/Gb/Gc; II 1/2G Ex ia IIC T6 Ga/Gb; II 1/2D Ex ia IIIC T85 °C Da/Db; II 1/2G Ex ia/db [ia Ga] IIC T6 Ga/Gb; II 1/2D Ex ta/tb IIIC T85 °C Da/Db; II 1/2G Ex ia IIC T6 Ga/Gb; II 1/2G Ex ia/db [ia Ga] IIC T6 Ga/Gb; (IBExU16ATEX1194 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. Level sensing devices are to be arranged such that they may be removed without emptying tanks and without impairing the integrity of pressurized systems. A type approved transmitter power supply is required.
3. ATEX certified equipment is not to be installed in hazardous areas on U.S. vessels unless it can be proven 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).

Comments:

The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

1. Each particular application and installation is to be specifically approved in conjunction with the relevant system, locations and environmental conditions.
2. Dry Heat Test has been conducted for 16hrs at Temperature: 70°C (158°F) ± 2°C (3.6°F) as per 4-9-9/Table 1: Test 3A of the MVR Rules and IACS E10 Item 5, Rev-7.
3. Cold Test Cold Test had been conducted for 16hrs instead of the required 2hrs at -25°C as per 4-9-9/Table 1: Test 9

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of the MVR Rules and IACS E10 Item 11, Rev-7.

Notes/Drawing/Documentation:

Drawing No. 072225.038.19, EMC Testreport, MeßTechnikNord GmbH dated 09-05-2019, Revision: 1;
Drawing No. 18-10721-BE- Micropilot 62, Enviromental Testreport, Revision: 1;
Drawing No. 970006518_MB mit US, EMC Testreport, Revision: 1;
Drawing No. 970006581_MB mit US, EMC Testreport, Revision: 1;
Drawing No. 970006582_SIL mit US, EMC Testreport, Revision: 1;
Drawing No. 970006583_SIL mit US, EMC Testreport, Revision: 1;
Drawing No. 970006584_MB mit US, EMC Testreport, Revision: 1;
Drawing No. 970008316_AK mit US, EMC Testreport, Revision: 1;
Drawing No. BA01618FEN_0218, Operating Instructions, Revision: 1;
Drawing No. BA01619FEN_0218, Operating Instructions, Revision: 1;
Drawing No. BA01620FEN_0218, Operating Instructions, Revision: 1;
Drawing No. CSA70137829_70207457_CoC, CSA Ex Approval, Revision: 1;
Drawing No. FM17CA0099XSupp02, FM Ex Approval, Revision: 1;
Drawing No. FM17US0187XSupp02, FM Ex Approval, Revision: 1;
Drawing No. FMR6x Bestätigung EMV, Declaration EMC test, Revision: 1;
Drawing No. IBExU16ATEX1194_X_Issue3, ATEX certificate, Revision: 1;
Drawing No. IECEx_IBE_16.0035X_Issue3, IECEx certificate, Revision: 1;
Drawing No. ISO9001, ISO9001 certificate, Revision: 1;
Drawing No. TI01302FEN_0720, Technical Information, Revision: 1;
Drawing No. TI01303FEN_0720, Technical Information, Revision: 1;
Drawing No. TI01304FEN_0720, Technical Information, Revision: 1;

Supporting Documents from previous reviews:

Drawing No. 072225.038.19, EMC Test report FMR6x MesstechnikNord GmbH May-2019, Revision: 1, Pages: 1
Drawing No. 18-10721-BE, Enviromental test report FMR62, FMR67 Paconsult Sep-2018, Revision: 1, Pages: 1
Drawing No. 970005920--, IP test report, Revision: 1, Pages: 1
Drawing No. 970005921--, IP test report, Revision: 1, Pages: 1
Drawing No. 970006013--, IP test report, Revision: 1, Pages: 1
Drawing No. 970006014--, IP test report, Revision: 1, Pages: 1
Drawing No. 970006015--, IP test report, Revision: 1, Pages: 1
Drawing No. 970006016--, IP test report, Revision: 1, Pages: 1
Drawing No. 970006581_MB mit US, E+H internal EMC test report, Revision: 1, Pages: 1
Drawing No. 970006582_SIL mit US, E+H internal EMC test report, Revision: 1, Pages: 1
Drawing No. 970006583_SIL mit US, E+H internal EMC test report, Revision: 1, Pages: 1
Drawing No. 970006584_MB mit US, E+H internal EMC test report, Revision: 1, Pages: 1
Drawing No. BA01618FEN_0218, Operating Instructions FMR60, Revision: 1, Pages: 1
Drawing No. BA01619FEN_0218, Operating Instructions FMR62, Revision: 1, Pages: 1
Drawing No. BA01620FEN_0218, Operating Instructions FMR67, Revision: 1, Pages: 1
Drawing No. CSA70137829_70207457_CoC, CSA certificate, Revision: 1, Pages: 1
Drawing No. EC_00477_04.17, EC Declaration of Conformity, Revision: 1, Pages: 1
Drawing No. EC_00478_04.17, EC Declaration of Conformity, Revision: 1, Pages: 1
Drawing No. EC_00479_04.17, EC Declaration of Conformity, Revision: 1, Pages: 1
Drawing No. EC_00632_01.18, EC Declaration of Conformity, Revision: 1, Pages: 1
Drawing No. FM17CA0099X, FM certificate, Revision: 1, Pages: 1
Drawing No. FM17US0187X, FM certificate, Revision: 1, Pages: 1
Drawing No. FMR6x Bestätigung EMV, Statetment EMC Test report, Revision: 1, Pages: 1
Drawing No. IBExU16ATEX1194X_Issue2, ATEX certificate, Revision: 1, Pages: 1
Drawing No. IECExIBE16.0035X_Issue1, IECEx certificate, Revision: 1, Pages: 1
Drawing No. KA01251FEN_0318, Brief Operating Instructions FMR60, Revision: 1, Pages: 1
Drawing No. KA01252FEN_0318, Brief Operating Instructions FMR62, Revision: 1, Pages: 1

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Drawing No. KA01253FEN_0318, Brief Operating Instructions FMR67, Revision: 1, Pages: 1
Drawing No. Ordercode for FMR60_ver01, Ordercode for FMR60_ver01, Revision: 1, Pages: 1
Drawing No. Ordercode for FMR62_ver01, Ordercode for FMR62_ver01, Revision: 1, Pages: 1
Drawing No. Ordercode for FMR67_ver01, Ordercode for FMR67_ver01, Revision: 1, Pages: 1
Drawing No. Ordercode for FMR6x_ver01, Ordercode for FMR6x_ver01, Revision: 1, Pages: 1
Drawing No. Statement_on_Asbestos, Statement_on_Asbestos, Revision: 1, Pages: 1
Drawing No. TI01302FEN_0418, Technical Information FMR60, Revision: 1, Pages: 1
Drawing No. TI01303FEN_0418, Technical Information FMR62, Revision: 1, Pages: 1
Drawing No. TI01304FEN_0418, Technical Information FMR67, Revision: 1, Pages: 1
Drawing No. XA01551FA3_0418, Safety Instructions FMR6x, Revision: 1, Pages: 1
Drawing No. XA01552FA3_0418, Safety Instructions FMR6x, Revision: 1, Pages: 1
Drawing No. XA01553FA3_0318, Safety Instructions FMR6x, Revision: 1, Pages: 1
Drawing No. XA01555FA3_0418, Safety Instructions FMR6x, Revision: 1, Pages: 1
Drawing No. XA01556FA3_0418, Safety Instructions FMR6x, Revision: 1, Pages: 1
Drawing No. XA01612FEN_0217, Safety Instructions FMR6x, Revision: 1, Pages: 1
Drawing No. XA01613FEN_0217, Safety Instructions FMR6x, Revision: 1, Pages: 1
Drawing No. XA01615FEN_0117, Safety Instructions FMR6x, Revision: 1, Pages: 1
Drawing No. XA01616FEN_0117, Safety Instructions FMR6x, Revision: 1, Pages: 1

Terms of Validity:

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STANDARDS

ABS Rules:

Rules for Conditions of Classification, Part 1- 2022, 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:
2022 Marine Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-6-2/9.11.3, 4-6-4/11.7, 4-6-4/13.5.6(d), 4.6.4/15.3.4(d), 4-8-3/1.7, 4-8-3/1.11, 4-8-3/1.17, 4-8-3/13.1, 4-9-9/13, 4-9-9/15.7 Table 1;

National:

N.A.

International:

IACS E10 Rev-7, 2018

Government:

NA

EUMED:

NA

Electronically published by ABS Houston.
Reference T2215902, dated 01-FEB-2022.

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OTHERS:
NA