



UNITED KINGDOM CONFORMITY ASSESSMENT

UK TYPE EXAMINATION CERTIFICATE

Equipment or Protective System Intended for use in Potentially Explosive Atmospheres

UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

Certificate Number: **CSAE 24UKEX1047X** Issue: **0**
Product: **Level Transmitter, Model Micropilot FMR43**
Manufacturer: **Endress+Hauser SE+Co. KG**
Address: Hauptstrasse 1
Maulburg Baden-Württemberg 79689
Germany

This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

CSA Group Testing UK Limited, Approved Body number 0518, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations. The examination and test results are recorded in the confidential reports listed in Section 14.2.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 EN 60079-11:2012 IEC 60079-11:2023 Ed.7

* IEC 60079-11:2023 Ed.7 is listed on the ATEX certification as the equipment is assessed to the latest technical requirements and is deemed 'State of Art'. As the EN version of the standard is yet to be issued and harmonised, EN 60079-11:2012 remains listed as the harmonised standard and continued compliance to the Essential Health & Safety Requirements (EHSR's) is covered by this standard.

Except in respect of those requirements listed at Section 16 of the schedule to this certificate. The above standards may not appear on the UKAS Scope of Accreditation, but have been added through flexible scope of accreditation, which is available on request.

If the sign 'X' is placed after the certificate number, it indicates that the product is subject to Specific Conditions of Use identified in the schedule to this certificate.

This UK TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

The marking of this product shall be in accordance with Regulation 41 and include the following:



II 1GD
Ex ia IIC T4...T1 Ga
Ex ia IIIB T135°C Da
Refer to the Specific Conditions of
Use for temperature information.

Name: Michelle Halliwell

Title: Senior Director of Operations

Certificate No. CSAE 24UKEX1047X

CSA Group Testing UK Ltd., Unit 6 Hawarden Industrial Park, Hawarden, CH5 3US, UK

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13 DESCRIPTION OF PRODUCT

The FMR43 is a radar level transmitter device which converts a time-of-flight radar wave signal into an electrical output signal proportional to the measured level. The FMR43 consists of compact platform electronics covered under component certificate CSAE 24UKEX1045U and radar sensor also covered under component certificate CSAE 24UKEX1052U.

The Compact Platform Electronics consists of a terminal board (TA20-01), main board (MA20-01) and display assembly for visualization (VA20-01/02-LCD or VA22-01-LED).

The Micropilot Radar Sensor consists of encapsulated electronics with a metallic housing with a waveguide connected to the process via a non-metallic housing. The metallic enclosure is full seam welded to the transmitter's enclosure. The electronic of the sensor transforms the time difference between the propagated wave and the received wave into an electrical signal which is then evaluated and put out as analogue 4...20mA signal by Compact Platform.

The overall equipment is housed in a stainless-steel metallic enclosure with a plastic viewing window for an LCD or LED display, equipped with an M12 field wiring connector for field wiring.

The entity parameters, in type of protection Ex ia IIC:

U_i = 30 V I_i = 100 mA P_i = 700 mW C_i = 15nF L_i = 0.69 mH

In type of protection Ex ia IIIB:

U_i = 30 V I_i = 100 mA P_i = 650 mW C_i = 15nF L_i = 0.69 mH

FMR43 – aa bb c d e ff ggg h i + jj kk ll mm nn oo pp qq rr		
Feature	Option	Text EN
aa = 10		Approval:
	UA	UK Ex II 1G Ex ia IIC T4 Ga
	UH	UK Ex II 1D Ex ia IIIB T135°C Da
	UI	UK Ex II 1G Ex ia IIC T4 Ga, II 1D Ex ia IIIB Da
bb = 20		Output:
	BA	2-wire 4-20mA HART
c = 30		Display; Operation:
	C	LED Status; One-Button-Operation
	D	LED Status; One-Button-Operation + Bluetooth
	G	Color display w/o touch control
	H	Color display w/o touch control + Bluetooth
	J	Graphic colored display with touch control
	K	Graphic colored display with touch control + Bluetooth
d = 40		Housing; Material:
	F	Compact; 316L
e = 50		Electrical Connection:
	N	Plug M12, IP66/68/69 Type 4X/6P Encl.
ff = 105		Process Connection, Sealing Surface:
	A1	Thread ASME B1.20.1, NPT
	I1	Thread ISO228, G

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FMR43 – aa bb c d e ff ggg h i + jj kk ll mm nn oo pp qq rr		
Feature	Option	Text EN
	NA	Neumo BioControl
	TA	Clamp/Tri-Clamp
	X1	Thread metric (DIN13)
ggg = 110		Process Connection, Sealing Surface:
	VHJ	MNPT3/4, 316L, flush mount
	VLJ	MNPT1-1/2, 316L, flush mount
	WKJ	G3/4, 316L, flush mount
	WLJ	G1, 316L, flush mount
	WNJ	G1-1/2, 316L, flush mount
	X2J	M24, 316L, install > accessory, process adapter
	3CK	Tri-Clamp > NA Connect ISO2852, DN25-38 (1-1/2"), PTFE>316L
	3EK	Tri-Clamp > NA Connect ISO2852 DN40-51, (2"), PTFE>316L
	5DK	NEUMO Bio Control D50 PN16, PEEK>316L
h = 200		Process Connection, Sealing Surface:
	B	PTFE
	C	PEEK
	D	FKM
	G	EPDM
i = 210		Process Connection, Sealing Surface:
	FA	80GHz; PTFE
	FB	80GHz; PEEK
jj = 500		>Operation Language Display:
	Any digit	Not relevant to the certification
kk = 540		> >Application Package:
	Any digit	Not relevant to the certification
ll = 550		>Calibration:
	Any digit	Not relevant to the certification
mm = 570		> >Service:
	Any digit	No changes on hardware (programming, cleaning)
nn = 580		> >Test, Certificate, Declaration:
	Any digit	Any test certificate or declaration are not part of this certification
oo = 590		> >Additional Approval:
	Any digit	Any additional approval is not part of this certification
pp = 620		> >Accessory Enclosed:
	Any digit	Additional accessory is not part of this certification
qq = 850		>Firmware-Version:
	Any digit	Software level is not part of this certification
rr = 895		> >Marking:
	Any digit	Tagging, not relevant to the certification



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14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	21 May 2025	R80191565A	The release of the prime certificate.

15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

- 15.1 The maximum ambient temperature for group II, temperature class T4 process temperature T_p , are de-rated in tables provided in Safety Instructions.
- 15.2 Ambient and process temperature range for group III is from $-40\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$.
- 15.3 In applications where the process temperature exceeds the maximum surface temperature limits of the required maximum surface temperature, the hot surface ignition hazard at the process connecting parts of the device shall be addressed.
- 15.4 The device shall use a power supply that is galvanically isolated from earth
- 15.5 To avoid electrostatic charging in explosive atmospheres, avoid rubbing of the non-metallic surfaces using electrostatic generating materials. Do not use the device in applications with moving dust atmosphere causing electrostatic charging.
- 15.6 Transmitter with Basic specification, Position 10-12 = 3EK, 3FK, 3HK, 5DK, 5FK, shall not be used in gas applications. Alternatively, the sensor may be used without restrictions if it is known that the application will not lead to a hazardous charging of the polymeric surface.
- 15.7 Transmitter with basic specification, Position 10-12 = 3CK, 5AK, shall be used in gas applications in conjunction with a metallic frame provided by the user. This can be a metal tank wall, a metallic nozzle, or a pipe. Alternatively, the sensor may be used without restrictions if it is known that the application will not lead to a hazardous charging of, the polymeric surface.
- 15.8 Transmitter with basic specification, Position 10-12 = 3CK, 3EK, 5xK, shall be used in dust applications if mounted inside of a metal tube or nozzle. Alternatively, the sensor may be used without restrictions if it is known that the application will not lead to a hazardous charging of the polymeric surface.
- 15.9 Transmitter with basic specification, Position 10-12 = 3FK, 3HK, shall not be used in dust applications. Alternatively, the sensor may be used without restrictions if it is known that the application will not lead to a hazardous charging of the polymeric surface.

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS (REGULATIONS SCHEDULE 1)

In addition to the Essential Health and Safety Requirements covered by the standards listed in Section 9, all other requirements are demonstrated in the relevant reports.

17 PRODUCTION CONTROL

- 17.1 Holders of this certificate are required to comply with production control requirements defined in Schedule 3A, as applicable, and CSA Group Testing UK Regulations for Certificate Holders



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- 17.2 Routine test for the encapsulant and conformal coating for the complete device has to be conducted as per E+H procedure to comply with IEC 60079-11 Ed. 7 Cl 10.4.
- 17.3 The products covered by this certificate incorporate previously certified devices as shown below in the table, it is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with these devices, and the manufacturer shall inform CSA Group of any modifications of the devices that may impinge upon the explosion safety design of their products.

Component	Model	Certificate or Report	Standards
Enclosure	HY20-** & HY21-** Series	CSA report number 80184761, dated March 07, 2024	CSA C22.2 No. 94.2:20 Third Edition & ANSI/UL 50E Third Edition, October 15, 2020
Platform Electronics	Compact Platform, consisting of modules TA20-01A, MA20-01A, VA20-01A, VA20-02A and VA22-01A	IECEX CSA 24.0035U issue 0 CSANe 24ATEX1149U issue 0 CSAE 24UKEX1045U issue 0	IEC 60079-0, edition 7.0 IEC 60079-11, edition 7.0 EN IEC 60079-0:2018
Micropilot Radar Sensor	EA20-01A+SR20-xxxA	IECEX CSAE 24.0044U issue 0 CSANe 24ATEX1175U issue 0 CSAE 24UKEX1052 issue 0	IEC 60079-0, edition 7.0 IEC 60079-11, edition 7.0 EN IEC 60079-0:2018 EN 60079-11:2012



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Certificate Annexe

Certificate Number: CSAE 24UKEX1047X
Product: Endress+Hauser SE+Co. KG
Manufacturer: Level Transmitter, Model Micropilot FMR43

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Drawing	Sheets	Rev.	Date (Stamp)	Title
961006634	1 to 7	B	04 Apr 25	Addendum IECEx/ATEX/UKEx AIC MA20-01A Electronic Modules Compact Platform
961006636	1 to 6	A	04 Apr 25	Addendum IECEx/ATEX/UKEx AIC VA20-01A, VA20-02A Electronic Modules Compact Platform
961006637	1 to 6	A	04 Apr 25	Addendum IECEx/ATEX/UKEx AIC VA22-01A Electronic Modules Compact Platform
961006638	1 to 7	A	04 Apr 25	Addendum IECEx/ATEX/UKEx AIC TA20-01A Electronic Modules Compact Platform
961006639	1 to 7	A	04 Apr 25	Addendum IECEx/ATEX/UKEx AIC EA20-01A Electronic Modules Compact Platform
961007967	1 to 8	A	04 Apr 25	Addendum AIC SR20-XXXX IECEx+ Compact Platform
961006853	1 to 2	B	04 Apr 25	Approval Ident Code (AIC) Radar Sensors Compact Line FMR43ensors
*961007163	1 of 1	A	04 Apr 25	Overview FMR43 Compact Line
**961007164	1 of 1	A	04 Apr 25	Ass. FMR43 Compact Line
961007187	1 of 1	B	04 Apr 25	Potting BV FMR43 80 GHz / 180 GHz
961007339	1 of 1	A	04 Apr 25	Overview housing
961007975	1 to 2	A	04 Apr 25	Nameplate IECEx/ATEX/UK Ex Ex ia IIC/IIIB, Ex ic IIC/IIIB Compact Line FMR43
961008005	1 of 1	B	04 Apr 25	FMR Isolation parts
961008287-A	1	--	04 Apr 25	PCB holder display CX2022A
961007544-A	1 to 33	01.08	04 Apr 25	Technical descriptive document
961008133	1 of 1	A	04 Apr 25	Electronic Connection Diagram FMR43, 4...20mA HART
961008199-A.	1 of 1	A	04 Apr 25	FMR Electronic Box Compact Line HY20-02A HY21-01A
XA03396F-A	1 to 12	2024-10-14	04 Apr 25	Safety Instructions – Micropilot FMR43 Ex ia IIC T4 Ga /Ex ic IIC T4 Gc
XA03397F-A	1 to 16	2024-10-14	04 Apr 25	Safety Instructions - Micropilot FMR43 Ex ia IIC T4 Ga/Ex ia IIIB T135 °C Da
XA03398F-A	1 to 12	2024-10-14	04 Apr 25	Safety Instructions - Micropilot FMR43 Ex ia IIIB T135 °C Da /Ex ic IIIB T4 Dc

*NOTE: only 80 GHz models are covered. The uncovered models of sensors are:

SR22-321 PTFE G1/2 180 GHz
 SR22-322 PTFE NPT ½ 180 GHz
 SR22-330 PTFE ¾ " 180 GHz M24

**NOTE: drawing indicates sensor boards for 180 GHz and 80 GHz versions. This certification covers only 80 GHz sensor board version.



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