



# IECEx Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: **IECEx CSA 25.0018X** Page 1 of 4 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2025-05-21

Applicant: **Endress+Hauser SE+Co. KG**  
Hauptstraße 1  
Maulburg 79689  
Germany

Equipment: **Level Transmitter, Model Micropilot FMR43**

Optional accessory:

Type of Protection: **Intrinsic Safety 'i'**

Marking: Ex ia IIC T4...T1 Ga  
Ex ic IIC T4...T1 Gc  
Ex ia IIIB T135°C Da  
Ex ic IIIB T135°C Dc

Refer to the Specific Conditions of Use for temperature information.

Approved for issue on behalf of the IECEx  
Certification Body:

**Dave Magee**

Position:

**Senior Director of Operations**

Signature:  
(for printed version)

Date:  
(for printed version)

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting [www.iecex.com](http://www.iecex.com) or use of this QR Code.



Certificate issued by:

**CSA Group**  
178 Rexdale Boulevard  
Toronto, Ontario M9W 1R3  
Canada





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Hauptstraße 1  
79689 Maulburg  
Germany

Manufacturing locations: **Endress+Hauser SE+Co. KG**  
Hauptstraße 1  
79689 Maulburg  
Germany

**Endress+Hauser (USA) Automation Instrumentation Inc.**  
2340 Endress Place  
Greenwood , Indiana 46143  
United States of America

**Endress+Hauser (Suzhou) Automation Instrumentation Co. Ltd.**  
China – Singapore Industrial Park (SIP)  
Su-Hong-Zhong-Lu, No. 491  
Jiangsu Province, 215021 Suzhou  
China

## See following pages for more locations

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

### STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

**IEC 60079-0:2017** Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

**IEC 60079-11:2023** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:7.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

### TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

**CA/CSA/ExTR25.0016/00**

Quality Assessment Report:

**DE/TUN/QAR06.0003/11**



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## EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

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 IECEX CSA 24.0035U and radar sensor also covered under component certificate IECEX CSAE 24.0044U.

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 or Ex ic IIC:

Ui = 30 V      li = 100 mA      Pi = 700 mW      Ci = 15nF      Li = 0.69 mH

In type of protection Ex ia IIIB or Ex ic IIIB:

Ui = 30 V      li = 100 mA      Pi = 650 mW      Ci = 15nF      Li = 0.69 mH

## SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The maximum ambient temperature for group II, temperature class T4 process temperature Tp, are de-rated in tables provided in Safety Instructions.
2. Ambient and process temperature range for group III is from -40 °C to +70 °C.
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.
4. The device shall use a power supply that is galvanically isolated from earth
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.
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.
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.
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.
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.



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Additional manufacturing locations:

**Endress+Hauser (India) Automation  
Instrumentation Pvt. Ltd.**  
M-192, Waluj MIDC  
Maharashtra State  
Aurangabad 431136  
**India**

**Endress+Hauser Flowtec (Brazil)  
Fluxômetros Ltda.**  
Estrada Municipal Antônio Sesti,  
600 Bairro Recreio Costa Verde  
Itatiba, SP - 13254-085  
**Brazil**

**Endress+Hauser Yamanashi Co., Ltd**  
862-1 Mitsukunugi Sakaigawa-cho  
Fuefuki-shi Yamanashi Pref. 406-0846  
**Japan**

**Annex:**

[IECEX CSA 25.0018X Annexe Issue 0\\_1.pdf](#)

Annexe to: IECEx CSA 25.0018X Issue 0

Applicant: Endress+Hauser SE+Co. KG

Apparatus: Level Transmitter, Model Micropilot FMR43



## Equipment Continued

| 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                                                     |        | <b>Approval:</b>                                            |
|                                                             | BA     | ATEX/IEC II 1G Ex ia IIC T4 Ga                              |
|                                                             | BH     | ATEX/IEC II 1D Ex ia IIIB T135°C Da                         |
|                                                             | BI     | ATEX/IEC II 1G Ex ia IIC T4 Ga, II 1D Ex ia IIIB Da         |
|                                                             | BT     | ATEX/IEC II 3D Ex ic IIIB T135°C Dc                         |
|                                                             | BU     | ATEX/IEC II 3G Ex ic IIC T4 Gc                              |
| bb = 20                                                     |        | <b>Output:</b>                                              |
|                                                             | BA     | 2-wire 4-20mA HART                                          |
| c = 30                                                      |        | <b>Display; Operation:</b>                                  |
|                                                             | 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                                                      |        | <b>Housing; Material:</b>                                   |
|                                                             | F      | Compact; 316L                                               |
| e = 50                                                      |        | <b>Electrical Connection:</b>                               |
|                                                             | N      | Plug M12, IP66/68/69 Type 4X/6P Encl.                       |
| ff = 105                                                    |        | <b>Process Connection, Sealing Surface:</b>                 |
|                                                             | A1     | Thread ASME B1.20.1, NPT                                    |
|                                                             | I1     | Thread ISO228, G                                            |
|                                                             | NA     | Neumo BioControl                                            |
|                                                             | TA     | Clamp/Tri-Clamp                                             |
|                                                             | X1     | Thread metric (DIN13)                                       |
| ggg = 110                                                   |        | <b>Process Connection, Sealing Surface:</b>                 |
|                                                             | 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                                                     |        | <b>Process Connection, Sealing Surface:</b>                 |
|                                                             | B      | PTFE                                                        |
|                                                             | C      | PEEK                                                        |
|                                                             | D      | FKM                                                         |
|                                                             | G      | EPDM                                                        |
| i = 210                                                     |        | <b>Process Connection, Sealing Surface:</b>                 |
|                                                             | FA     | 80GHz; PTFE                                                 |

Date: 21 May 2025

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Annexe to: IECEx CSA 25.0018X Issue 0

Applicant: Endress+Hauser SE+Co. KG

Apparatus: Level Transmitter, Model Micropilot FMR43



| FMR43 – aa bb c d e ff ggg h i + jj kk ll mm nn oo pp qq rr |           |                                                                        |
|-------------------------------------------------------------|-----------|------------------------------------------------------------------------|
| Feature                                                     | Option    | Text EN                                                                |
|                                                             | FB        | 80GHz; PEEK                                                            |
| jj = 500                                                    |           | <b>&gt; Operation Language Display:</b>                                |
|                                                             | Any digit | Not relevant to the certification                                      |
| kk = 540                                                    |           | <b>&gt; &gt; Application Package:</b>                                  |
|                                                             | Any digit | Not relevant to the certification                                      |
| ll = 550                                                    |           | <b>&gt; Calibration:</b>                                               |
|                                                             | Any digit | Not relevant to the certification                                      |
| mm = 570                                                    |           | <b>&gt; &gt; Service:</b>                                              |
|                                                             | Any digit | No changes on hardware (programming, cleaning)                         |
| nn = 580                                                    |           | <b>&gt; &gt; Test, Certificate, Declaration:</b>                       |
|                                                             | Any digit | Any test certificate or declaration are not part of this certification |
| oo = 590                                                    |           | <b>&gt; &gt; Additional Approval:</b>                                  |
|                                                             | Any digit | Any additional approval is not part of this certification              |
| pp = 620                                                    |           | <b>&gt; &gt; Accessory Enclosed:</b>                                   |
|                                                             | Any digit | Additional accessory is not part of this certification                 |
| qq = 850                                                    |           | <b>&gt; Firmware-Version:</b>                                          |
|                                                             | Any digit | Software level is not part of this certification                       |
| rr = 895                                                    |           | <b>&gt; &gt; Marking:</b>                                              |
|                                                             | Any digit | Tagging, not relevant to the certification                             |

## Conditions of Manufacture

The Manufacturer shall comply with the following:

1. 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.
2. 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<br>CSANe 24ATEX1149U issue 0<br>CSAE 24UKEX1045U issue 0 | IEC 60079-0, edition 7.0<br>IEC 60079-11, edition 7.0<br>EN IEC 60079-0:2018                     |
| Micropilot Radar Sensor | EA20-01A+SR20-xxxA                                                                          | IECEX CSAE 24.0044U issue 0<br>CSANe 24ATEX1175U issue 0<br>CSAE 24UKEX1052 issue 0 | IEC 60079-0, edition 7.0<br>IEC 60079-11, edition 7.0<br>EN IEC 60079-0:2018<br>EN 60079-11:2012 |

Date: 21 May 2025

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