



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

Certificate No.: **IECEx FMG 16.0011X** Page 1 of 4 Certificate history:
Status: **Current** Issue No: 5 Issue 4 (2020-10-19)
Date of Issue: 2021-04-02 Issue 3 (2020-02-04)
Applicant: **Endress+Hauser SE+Co. KG** Issue 2 (2019-02-01)
Hauptstrasse 1 Issue 1 (2018-07-02)
79689 Maulburg Issue 0 (2016-07-11)
Germany
Equipment: **Tank Gauge Radar Micropilot NMR81 and NMR84**
Optional accessory:
Type of Protection: **Intrinsic Safety "ia" , Flameproof "db"**
Marking: Ex ia/db IIC T* Ga/Gb
Ex db [ia Ga] IIC T* Gb
IP66/IP68
Process Sealed
NMR81 T* = T4...T1
NMR81, NMR84 T* = T6...T1
Tamb refer to Annex

Approved for issue on behalf of the IECEx
Certification Body:

J. E. Marquand

Position:

VP, Manager - Electrical Systems

Signature:
(for printed version)

Date:

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 or use of this QR Code.



Certificate issued by:

FM Approvals LLC
1151 Boston-Providence Turnpike
Norwood, MA 02062
United States of America





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Manufacturer: **Endress+Hauser SE+Co. KG**
Hauptstrasse 1
79689 Maulburg
Germany

Additional
manufacturing
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 60079-1:2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-26:2014-10 Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
Edition:3.0

IEC TS 60079-40:2015 Explosive atmospheres - Part 40: Requirements for process sealing between flammable process fluids
Edition:1.0

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 Reports:

[US/FMG/ExTR16.0012/00](#)
[US/FMG/ExTR16.0012/03](#)

[US/FMG/ExTR16.0012/01](#)
[US/FMG/ExTR16.0012/04](#)

[US/FMG/ExTR16.0012/02](#)
[US/FMG/ExTR16.0012/05](#)

Quality Assessment Report:

[DE/TUN/QAR06.0003/08](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

General - The Tank Gauge Radar Micropilot NMR8x is used for the contactless, continuous measurement of liquids in hazardous areas with gas atmosphere. Two different types of transmitters are available, the NMR81 and NMR84, each with a different transmitter, antenna and working frequencies for different applications. Short microwave impulses are radiated from the antenna, reflected by the medium surface and picked up again by the antenna. The delay time between radiation and receiving is measured and converted into a signal to calculate the level.

Construction - The Tank Gauge Radar Micropilot NMR81 and NMR84 Series comprises a single compartment flameproof enclosure with a thread-on window cover — housing the display module, electronics assembly, radar module — along with a feedthrough and a process connector with antenna. NMR81 and NMR84 have a unique radar box, feedthrough, connection cable and antenna while they share the same enclosure, display and electronics assembly. The enclosure for NMR81 and NMR84 can be Aluminum or Stainless Steel, with 7 integral M20 sized field wiring entries. Integral threaded inserts allow for optional field wiring entry options including M25, ½ NPT or ¾ NPT.

The Tank Gauge Radar Micropilot NMR81 and NMR84 is comprised of certified Tank Gauge Platform Enclosures (FM16ATEX0031U) and certified Tank Gauge Platform Electronic Modules (FM16ATEX0020U).

The following enclosures and electronic modules may be used:

- Enclosure TRC[01-10-11] ALU C-Band
- Enclosure TRC[01-20-11] ALU E-Band
- Enclosure TRC[02-10-12] SS C-Band
- Enclosure TRC[02-20-12] SS E-Band
- Module TRC[00] FP Front Plane Board
- Module TRC[01] PS_HV Power Supply, High Voltage
- Module TRC[02] PS_LV_AC Power Supply, Low Voltage, AC
- Module TRC[03] PS_LV_DC Power Supply, Low Voltage, DC
- Module TRC[10] MB Main Board,
- Module TRC[20] IOM_A IO Module Analog
- Module TRC[21] IOM_A IO Module Analog
- Module TRC[31] IOM_D IO Module Digital
- Module TRC[32] IOM_Mod_FF IO Module Modbus/FF
- Module TRC[33] IOM_V1_WM550 IO Module V1/WM550

Ratings - The Tank Gauge Radar NMR8x operates at 85-264 Vac (28.8 Volt-Amperes), 52-75Vac (21.6 Volt-Amperes) and 19-64Vdc (13.4 Watts). The transmitters are rated for use in an ambient temperature range of -40°C to +60°C. The transmitter probes are rated for use in a process temperature range of -40°C to +200°C (NMR81) or -40°C to +150°C (NMR84). For further information regarding the Temperature Class and Ambient Temperature Ranges, refer to the temperature and configuration tables.

The enclosure of the Tank Gauge Radar NMR8x has an ingress protection rating of IP66 and IP68.

The Tank Gauge Radar NMR8x is evaluated as "Process Sealed" in accordance with PD IEC/TS 60079-40.

Please see attached Annex for additional details.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. For Ambient Temperature Range refer to Safety Instructions XA01410G.
2. An antenna coated with non-conductive material can be used if avoiding electrostatic charging (e.g. through friction, cleaning, maintenance, strong medium flow).
3. Flamepath joints are not for repair. Contact the manufacturer.
4. Use heat resisting cables rated $\geq 85^{\circ}\text{C}$ for $T_a > 50^{\circ}\text{C}$.
5. Precautions shall be taken to minimize the risk from electrostatic discharge of non-metallic labels, varnishes/coatings on the stainless steel 316L and isolated metal tags applied to the enclosure
6. To maintain the ingress protection ratings (IP66/68), teflon tape or pipe dope is required for blanking plugs.
7. Ex d certified seals are required within 50mm(2") on all used housing entries.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

1) Document updates due to addition of UKEx Certificate (FM21UKEX0001X)