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(1) # EU-Type Examination Certificate

(2) Equipment or protective system intended for use in potentially explosive atmospheres **- Directive 2014/34/EU**

(3) Certificate number: **SEV 16 ATEX 0122 X**

(4) Product: Radar level sensor FMR20 DN40/80

(5) Manufacturer: Endress + Hauser SE+Co. KG

(6) Address: Hauptstrasse 1, 79689 Maulburg, Germany

(7) The equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) Eurofins, notified body No. 1258, in accordance with article 17 of Directive 2014/34/EU of the European parliament and of the council, dated 26 February 2014, 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 Annex II to the Directive.
The examination and test results are recorded in confidential report no 20CH-00098.X06

(9) Compliance with the essential health and safety requirements has been assured by compliance with:

EN IEC 60079-0:2018
EN 60079-11:2012
EN 60079-26:2015

Except in respect of those requirements listed at item 18 of the schedule.

(10) If the sign «X» is placed after the certificate number, it indicates that the product is subjected to special conditions for safe use specified in the schedule to this certificate. The sign "U" is placed after the certificate number. It indicates that this certificate must not be mistaken for a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of an equipment or protective system.

(11) This EU type examination certificate relates only to design and construction of the specified product. Further requirements of this directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

II 1G Ex ia IIC T4...T1 Ga
II 1/2G Ex ia IIC T4...T1 Ga/Gb

Eurofins Electric & Electronic Product Testing AG
Notified Body ATEX

Martin Plüss
Product Certification

(13) # Appendix

(14) **EU-Type Examination Certificate no. SEV 16 ATEX 0122 X**

(15) **Description of product**

Endress + Hauser, FMR20 is a level liquid sensor which can be used within tanks as well as in free space. The FMR20 device is designed for use in explosive atmospheres. Its purpose is the continuous liquid level measurement as well as the operation in utility and environmental applications. This complies measurements of the filling level in free-space and within storage tanks and reservoirs, open basins, pumping shafts, canal systems below and above ground. Since the device can be mounted in an explosive atmosphere, it needs to fulfil the common standards of Europe and North America.
The measuring device FMR20 is intended for continuous, non-contact level measurement in liquids. Because of its operating frequency of approx. 26 GHz, a maximum radiated pulsed power of 1.0 mW and an average power output of 10 µW, unrestricted use outside of closed, metallic vessels is also permitted. Operation does not pose a risk to health or the environment.

Classification of installation and use:	stationary
Ingress protection:	IP68
Rated ambient temperature range (°C):	-40 °C to +80 °C
Rated ambient temperature range (°C) for Ex Components:	N/A

Temperature:

Temperature class	Rated ambient temperature	Rated process temperature
T4...T1	-40 °C ... +80 °C	-40 °C ... +80 °C

Rating:

FMR20 option A and P (2-wire, 4-20mA HART):

Supply circuit: Type of protection Intrinsic Safety Ex ia IIC.

Maximum input voltage	Ui	=	30 V
Maximum input current	Ii	=	100 mA
Maximum input power	Pi	=	750 mW
Inductance	Li	=	35 µH
Capacitance	Ci	=	15 nF

FMR20 option R (4-wire, Modbus RS485):

Supply: Type of protection Intrinsic Safety Ex ia IIC.

Maximum input voltage	Ui	=	30 V
Maximum input current	Ii	=	100 mA
Maximum input power	Pi	=	650 mW
Inductance	Li	=	20 µH
Capacitance	Ci	=	10 nF
Inductance cable	Lc	=	0.8 µH/m
Capacitance cable	Cc	=	45 pF/m

RS485-IS-Fieldbus:

Type of protection Intrinsic Safety Ex ia IIC.

Maximum output voltage	Uo	=	4.2 V
Maximum output current	Io	=	149 mA
Linear characteristic			
Maximum input voltage	Ui	=	4.2 V
Maximum input current	Ii	=	4.8 A
Inductance	Li	=negligibly low	
Capacitance	Ci	=	97 µF
Inductance cable	Lc	=	0.8 µH/m
Capacitance cable	Cc	=	45 pF/m

Cables (loop resistance) type of cable A or B acc. To IEC 60079-25 with the following parameters per unit length:

L'/R' ≤ 15 µH/Ω

Concentrated reactances in the cable run of the external RS485-IS-fieldbus system are not permitted.

(16) **Special conditions for safe use / Schedule of limitations**

Because the risk of electrostatic discharges, there are additional measures necessary during installation and operation. The following warning marking is placed on the equipment: WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS"

The FMR20 is for use under atmospheric conditions only. Pressure range: 80...110 kPA (0.8...1.1 bar).

(17) **Essential health and safety requirements**

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	**Subject**
None	

(18) **Drawings and Documents**

See test report "Manufacturer's Documents"