Translation

1 # EU-Type Examination Certificate

2 **Equipment intended for use in potentially explosive atmospheres Directive 2014/34/EU**

3 EU-Type Examination Certificate Number: **BVS 18 ATEX E 063 X**

4 Product: **Transmitter series RHE21**

5 Manufacturer: **Rheonik Messtechnik GmbH**

6 Address: **Rudolf-Diesel-Straße 5, 85235 Odelzhausen, Germany**

7 This product and any acceptable variations thereto are specified in the appendix to this certificate and the documents referred to therein.

8 DEKRA EXAM GmbH, Notified Body number 0158, 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 the confidential Report No. BVS PP 18.2116 EU.

9 The Essential Health and Safety Requirements are assured in consideration of:

IEC 60079-0:2017	**General requirements**
EN 60079-1:2014	**Flameproof enclosure "d"**
EN 60079-7:2015	**Increased Safety "e"**
EN 60079-11:2012	**Intrinsic Safety "i"**

Except in respect of those requirements listed under item 18 of the appendix.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the appendix to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the 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 2(1)G Ex db eb [ia Ga] IIC T4 Gb **or**
II 2(1)G Ex db [ia Ga] IIC T4 Gb **or**

II 3(1)G Ex db ec [ia Ga] IIC T4 Gc **or**
II 3(1)G Ex db [ia Ga] IIC T4 Gc **or**

II (1)G [Ex ia Ga] IIC

DEKRA EXAM GmbH
Bochum, 2018-07-26

Signed: Dr. Christiane Sultan
Certifier

Signed: Dr Michael Wittler
Approver

DAkkS Deutsche Akkreditierungsstelle D-ZE-12069-03-00

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13 **Appendix**

14 **EU-Type Examination Certificate**
BVS 18 ATEX E 063 X

15 **Product description**

15.1 **Subject and type**

Transmitter series RHE21 type E21-****-****-****-***

With

E21 RHE21

1. + 2. Asterisk Housing Options
E1, E2 = aluminum connection box, fixed sensor cable up to 10 m
E3, E4, EP = SS connection box, fixed sensor cable up to 10 m
E5 = SS connection box for I/O and for sensor
H1, H2 = no connection box, fixed sensor cable up to 10 m
H3 = connection box for sensor cable

3. + 4. Asterisk Power supply options
D1 = 12 to 24 V DC
A1 = 100 to 240 V AC
U1 = DC plus AC

5. + 6. Asterisk Marking without influence to type of protection (SW Options)

7. + 8. Asterisk Marking without influence to type of protection (I/O Configuration Options)

9. + 10. Asterisk Hazardous areas approvals
ATEX, IECEx:

A1 =	II 2(1)G Ex db [ia Ga] IIC T4 Gb	RHE21 in zone 1 or 2, (housing H*)
	II 2(1)G Ex db eb [ia Ga] IIC T4 Gb	RHE21 in zone 1 or 2, (housing E*)
A2 =	II 3(1)G Ex db [ia Ga] IIC T4 Gc	RHE21 in zone 2, (housing H*)
	II 3(1)G Ex db ec [ia Ga] IIC T4 Gc	RHE21 in zone 2, (housing E*)
AS =	II (1)G [Ex ia Ga] IIC	RHE21 in safe area

11. + 12. Asterisk Marking without influence to type of protection (Measurement Certifications)

13. - 15. Asterisk Marking without influence to type of protection (Special Options)

Note: Not all combinations are possible. For available combinations see instructions.

15.2 **Description**

The transmitter is made in type of protection Flameproof Enclosure. The electrical connection is made either by separately certified cable glands in type of protection Flameproof Enclosure or by terminal boxes in type of protection Increased Safety.

The transmitter in combination with a separately certified Coriolis mass flow meter is used for flow measurement (fluid / gas).

The transmitter generates an intrinsically safe circuit for connecting the Coriolis mass flow meter.

It measures the rough data from the sensor, calculates flow, density and temperature and gives out the values via analog or frequency signals or via interface and display.

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Listing of all components used referring to older standards

Subject and type	Certificate	Standards
Terminal type FRONT 2,5-H/...-EX	KEMA 00 ATEX 2053U	EN 60079-0:2012 IEC 60079-7:2015
Bushing type 07-91**_****/****	EPS 13 ATEX 1619U	EN 60079-0:2012 EN 60079-1:2014

15.3 **Parameters**

15.3.1 Non intrinsically safe main power supply

15.3.1.1 For type RHE21**A1/U1**********, terminals 23 - 24

Nominal voltage		AC	90 – 250	V
Maximum voltage	U_m	AC	250	V

15.3.1.2 For Type RHE21**D1/U1**********, terminals 20 - 21

Nominal voltage		DC	10 – 28	V
Maximum voltage	U_m	AC	250	V

15.3.2 Non-intrinsically safe input/ output circuits (for all types)

15.3.2.1 terminals 31 - 34 (digital out)

Nominal voltage		DC	30	V
Maximum voltage	U_m	AC	250	V

15.3.2.2 terminals 35 - 36 (digital in)

Nominal voltage		DC	30	V
Maximum voltage	U_m	AC	250	V

15.3.2.3 terminals 51-56 (analog out)

Nominal voltage		DC	30	V
Maximum voltage	U_m	AC	250	V

15.3.2.4 terminals 70 - 71 (RS 485)

Nominal voltage			5	V
Maximum voltage	U_m	AC	250	V

15.3.2.5 USB

Nominal voltage			5	V
Maximum voltage	U_m	AC	250	V

15.3.3 Intrinsically safe circuits (for all types)

15.3.3.1 Drive circuit (wire brown - blue or terminals 1 - 2)

Maximum output voltage	U_o	DC	8.1	V
Maximum output current	I_o		136	mA
Maximum output Power	P_o		275	mW
Maximum external capacitance	C_o		2000	nF
For Group IIC				
Maximum external inductance	L_o		1.9	mH
For Group IIB				
Maximum external inductance	L_o		7.5	mH

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15.3.3.2 Pickup circuits (wire yellow - green and grey - white or terminals 6 – 7 and 8 - 9)

Maximum output voltage	U_o	DC	2.4 V
Maximum output current	I_o		9 mA
Maximum output Power	P_o		5.4 mW
Maximum external capacitance	C_o		2000 nF
Maximum external inductance	L_o		100 mH

15.3.3.3 Temperature circuits (wire red – pink and orange – pink or terminals 3 - 4 and 5 – 4)
Circuit 1: cable red - pink or terminals 3 - 4
Circuit 2: cable pink - orange or terminals 5 - 4
Only for connecting temperature sensors. Output values per circuit

Maximum output voltage	U_o	DC	6.1 V
Maximum output current	I_o		45.7 mA
(Total current via GND (pink cable or terminal 4)			91.4 mA)
Maximum output Power	P_o		69.7 mW
Maximum external capacitance	C_o		2000 nF
Maximum external inductance	L_o		1 mH

15.3.3.4 Analog 4-20 mA Signal (terminals 60 - 61)

Maximum output voltage	U_o	DC	24.7 V
Maximum output current	I_o		91.5 mA
Maximum output Power	P_o		565 mW
Maximum external capacitance	C_o		100 nF
Maximum external inductance	L_o		4 mH

15.3.4 Thermal Data

Ambient temperature range -40 °C up to +60 °C

16 Report Number

BVS PP 18.2116 EU, as of 2018-07-26

17 Special Conditions for Use

The intrinsically safe circuits are connected to earth; along the intrinsically safe circuits potential equalization must exist.

18 Essential Health and Safety Requirements

The Essential Health and Safety Requirements are covered by the standards listed under item 9.

The standard IEC 60079-0:2017 is equivalent to the harmonized standard EN 60079-0:2012 + A11:2013 in terms of safety.

19 Drawings and Documents

Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH
Bochum, dated 2018-07-26
BVS-Pe/Nu A 20161052

Certifier

Approver

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