DEKRA

Translation

(1) # EC-Type Examination Certificate

(2) **- Directive 94/9/EC -**
Equipment and protective systems intended for use in potentially explosive atmospheres

(3) ## BVS 10 ATEX E 110 X

(4) **Equipment:** **Mass flow meter converter type UMC4-******

(5) **Manufacturer:** **Heinrichs Messtechnik GmbH**

(6) **Address:** **50739 Cologne, Germany**

(7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this type examination certificate.

(8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.
The examination and test results are recorded in the test and assessment report BVS PP 10.2206 EG.

(9) The Essential Health and Safety Requirements are assured by compliance with:

EN 60079-0:2009	General requirements
EN 60079-1:2004	Flameproof enclosure 'd'
EN 60079-11:2007	Intrinsic safety 'i'
EN 60079-26:2007	Equipment protection level (EPL) Ga

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

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

II (1)2G Ex d [ia Ga] IIC T4-T3 Gb

DEKRA EXAM GmbH
Bochum, dated 17. August 2010

Signed: Peter Migenda
Certification body

Signed: Dr. Michael Wittler
Special services unit

DEKRA EXAM GmbH Dinnendahlstrasse 9 44809 Bochum Germany Phone +49 234/3696-105 Fax +49 234/3696-110 E-mail zs-exam@dekra.com

(13) Appendix to

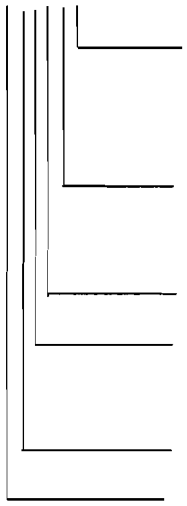
(14) # EC-Type Examination Certificate

BVS 10 ATEX E 110 X

(15) 15.1 Subject and type

Mass flow meter converter type UMC4-******

Type UMC4-******



Type of protection signal circuits
0 = without
1 = intrinsically safe Ex ia
2 = non-intrinsically safe

Certificate
0 = without
2 = II (1)2 G Ex d [ia Ga] IIC T4-T3 Gb

A = Output circuits

Power supply
1 = 90 – 265 V AC
2 = 19 – 36 V DC, 24V AC

1 = inclusive control unit

Mounting option
B = Compact version
D = Remote version with connection box
E = Remote version with permanently connected cable

15.2 Description

The mass flow meter converter is used in combination with a mass flow sensor for measurement of mass flow of liquids and gases in pipes.
The converter consists of an enclosure type XD-ID100win (FTZU 04 ATEX 0332U) and the electronic devices fixed without possibility of self-loosening inside.

The signal circuits can be executed in type UMC4-*****1 as intrinsically safe Ex ia (terminals 11 – 20) or in type UMC4-*****2 as non-intrinsically safe (terminals 41 – 50).

The Exciter circuit (terminals 9 and 10), the temperature sensor circuit (terminals 5 up to 8) and the sensor circuits (terminals 1 - 2 and 3 - 4) are always intrinsically safe, level of protection Ex ia.

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15.3 Parameters

15.3.1 Power circuit (terminals L, N and PE)

Type UMC4-**1***				
Nominal voltage		AC	90 - 265	V
Max. voltage	Um	AC	265	V
Type UMC4-**2***				
Nominal voltage		AC	24	V
Max. voltage	Um	AC	60	V
Nominal voltage		DC	19 - 36	V
Max. voltage	Um	DC	60	V

15.3.2 Passive non intrinsically safe circuits
Type UMC4-*****2
Current output 1 (terminals 41 - 42)
Current output 2 (terminals 43 - 44)
Impuls output (terminals 46 - 47)
Status output (terminals 49 - 50)

Max. voltage	Um	AC/DC	60	V
Max. current of the power supply			500	mA

15.3.3 Sensor circuits type of protection Ex ia II

15.3.3.1 Exciter circuit (terminals 9 and 10)

Voltage	Uo	DC	12.15	V
Current	Io		90	mA
Power	Po		271	mW
Linear output characteristic				
Type of protection Ex ia IIC				
Max. external inductance	Lo		5	mH
Max. external capacitance	Co		1320	nF
Type of protection Ex ia IIB				
Max. external inductance	Lo		18	mH
Max. external capacitance	Co		8400	nF

15.3.3.2 Temperature sensor circuit (terminals 5 up to 8)

Voltage	Uo	DC	12.15	V
Current	Io		3.84	mA
Power	Po		12	mW
Linear output characteristic				
Type of protection Ex ia IIC				
Max. external inductance	Lo		1000	mH
Max. external capacitance	Co		1305	nF
Type of protection Ex ia IIB				
Max. external inductance	Lo		1000	mH
Max. external capacitance	Co		8385	nF

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15.3.3.3 Sensor circuit (terminals 1 - 2 and 3 - 4)

Values for each circuit				
Voltage	Uo	DC	12.15	V
Current	Io		16	mA
Power	Po		47	mW
Linear output characteristic				
Type of protection Ex ia IIC				
Max. external inductance	Lo		140	mH
Max. external capacitance	Co		1305	nF
Type of protection Ex ia IIB				
Max. external inductance	Lo		510	mH
Max. external capacitance	Co		8385	nF

For type UMC4-E***** the following values for the permanent connected cable have to be regarded:

Cable capacitance	100	pF/m
Cable inductance	0.7	µH/m

15.3.4 Current output 1 (terminals 11 – 12) and
Current output 2 (terminals 13 - 14)
Type of protection Ex ia II
Passive circuit
Values for each circuit

Voltage	Ui	DC	30	V
Current	Ii		150	mA
Power	Pi		1.3	W
Effective internal inductance	Li		0.1	mH
Effective internal capacitance	Ci		20	nF

15.3.5 Impuls output (terminals 16 - 17) und - and
Status output 2 (terminals 19 -20)
Floating optocoupler output circuit type of protection Ex ia IIC

Voltage	Ui	DC	30	V
Current	Ii		200	mA
Power	Pi		3	W
Effective internal inductance	Li		negligible	
Effective internal capacitance	Ci		negligible	

15.3.6 Ambient temperature range Ta

Depending on the process temperature and the temperature class shown in the following table:

Process temperature -20 °C up to	Ambient temperature -20 °C up to	Temperature class
100 °C	60 °C	T4
130 °C	55 °C	T4
150 °C	50 °C	T3

if the converter is mounted remote from the process the ambient temperature range is
-20 °C up to +60 °C

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(16) Test and assessment report

BVS PP 10.2206 EG as of 17.08.2010

(17) Special conditions for safe use

17.1 If the mass flow meter converter is connected by conduit entries they have to be certified for this purpose and the associated stopping boxes have to be mounted immediately to the enclosure.

17.2 The correlation between ambient temperature range, process temperature and temperature class is shown in the manufacturer's instructions.

17.3 If sensor and mass flow meter are installed separately, it must be ensured that between sensor and flow meter potential equalisation is arranged.

17.4 For type UMC4-E***** the cable to the sensor has to be installed in a way that tensile force is omitted.

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.

44809 Bochum, 17.08.2010
BVS-Schu/Her A 20100350

DEKRA EXAM GmbH

Certification body

Special services unit

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Translation

(1) 1. Supplement to the EC-Type Examination Certificate

(2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC
Supplement accordant with Annex III number 6

(3) No. of EC-Type Examination Certificate: **BVS 10 ATEX E 110 X**

(4) Equipment: **Mass flow meter converter type UMC4-******

(5) Manufacturer: **Heinrichs Messtechnik GmbH**

(6) Address: **Robert-Perthel-Straße 9, 50739 Köln, Germany**

(7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this supplement.

(8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive. The examination and test results are recorded in the Test and Assessment Report BVS PP 10.2206 EG.

(9) The Essential Health and Safety Requirements are assured by compliance with:

EN 60079-0:2012 General requirements
EN 60079-1:2007 Flameproof enclosure "d"
EN 60079-11:2012 Intrinsic safety "i"
EN 60079-26:2007 Equipment protection level (EPL) Ga

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.

(11) This supplement to the EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

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

II (1)2G Ex d [ia Ga] IIC T4-T3 Gb

DEKRA EXAM GmbH
Bochum, dated 25th June 2013

Signed: Hans-Christian Simanski
Certification body

Signed: Dr. Michael Wittler
Special services unit

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(13) Appendix to

(14) **1. Supplement to the EC-Type Examination Certificate**
BVS 10 ATEX E 110 X

(15) 15.1 Subject and type

Mass flow meter converter type UMC4-******

15.2 Description

The mass flow meter converter can be modified according to the descriptive documents as mentioned in the pertinent Test and Assessment Report.

15.3 Parameters

Not changed

(16) Test and Assessment Report

BVS PP 10.2206 EG as of 25.06.2013

(17) Special conditions for safe use

Not changed

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
44809 Bochum, 25th June 2013
BVS-Schu/Mu A 20130465

Certification body

Special services unit

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