IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx BVS 11.0094X issue No.:1	Certificate history: Issue No. 1 (2014-4-25) Issue No. 0 (2011-12-19)
Status:	**Current**	
Date of Issue:	**2014-04-25**	Page 1 of 4

Applicant:
Heinrichs Messtechnik GmbH
Robert-Perthel-Strasse 9
50739 Cologne
Germany

Electrical Apparatus:
Optional accessory:
Mass flow meter converter with control unit UMC3-**** and type BE2**

Type of Protection:
Equipment protection by flameproof enclosures "d", Equipment protection by intrinsic safety "i", Equipment protection by increased safety "e"

Marking:
Ex d [ia Ga] IIB/IIC T6-T3 Gb
for mass flow meter converter
Ex ia IIC T6 Ga
for control unit

Approved for issue on behalf of the IECEx Certification Body: H.-Ch. Simanski

Position: Head of Certification Body

Signature:
(for printed version)

Date: 25. 4. 2014

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 the Official IECEx Website.

Certificate issued by:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

DEKRA
DEKRA EXAM GmbH

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Manufacturer: **Heinrichs Messtechnik GmbH**
Robert-Perthel-Strasse 9
50739 Cologne
Germany

Additional Manufacturing location (s):

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 electrical apparatus 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 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2007-04 Edition: 6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

*This Certificate **does not** indicate compliance with electrical 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:
DE/BVS/ExTR11.0126/01

Quality Assessment Report:

DE/BVS/QAR11.0001/02

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Schedule

EQUIPMENT:
Equipment and systems covered by this certificate are as follows:

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 of protection "d" and the electronic devices fixed inside. The terminal compartment can be type of protection "d".

The control unit can also be fixed in this housing or can be mounted separately.

Parameters

See Annex

CONDITIONS OF CERTIFICATION: YES as shown below:

Special conditions for safe use

1. The used cable entries and the used blanking elements have to be certified for this purpose. 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.
2. The external control device type BE has to be mounted inside an enclosure degree of protection min. IP20 and is designed for use in an ambient temperature range of -40 °C up to +70 °C. The separate mounted control unit is designed only for use in EPL Gb.
3. The mass flow meter converter is suitable for use in an ambient temperature range from -40 °C to +80 °C. The correlation between ambient temperature range, process temperature, temperature class and surface temperature is shown in the manufacturer's instructions.
4. The joint widths of the flameproof joint of this equipment are in parts longer, and its gaps are in parts shorter than required by table 2 of IEC 60079-1:2007. If any of the parts forming the joint shall be repaired, the dimensions of the manufacturer's documentation have to be kept.
5. When using the mass flow meter converter in an ambient temperature range that exceeds either -20 °C or +60 °C temperature-resistant cables and conductors have to be used as well as cable entries and blanking elements that are certified for use at 90 °C.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

The mass flow meter converter with control unit has been assessed in accordance with the current standard versions.

Annex: BVS_11_0094x_Heinrichs_Annex_Issue1.pdf

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 11.0094X, Issue No.: 1**
Annex

Parameters

1	Power circuit (terminals L, N and PE)				
	Nominal voltage		AC	90 – 230	V
	max. voltage	U_m	AC	265	V
	Nominal voltage		AC	24	V
	max. voltage	U_m	AC	30	V
	Nominal voltage		DC	19 – 36	V
	max. voltage	U_m	DC	36	V
2	Non intrinsically safe circuits for type UMC3-*****2 Current output 1 (terminals 41 - 42) Current output 2 (terminals 43 - 44) Binary output 1 passive (terminals 46 - 47) Binary output 1 active (terminals 45 and 48) Binary output 2 passive (terminals 49 - 50) Binary output 3 passive (terminals 53 - 54) Binary input (terminals 51 - 52) Profibus DP (terminals 37 – 38)				
	max. voltage	U_m	AC/DC	60	V
	max. current of the power supply			500	mA
3	Sensor circuits type of protection Ex ia II				
3.1	Exciter circuit (terminals 9 and 10)				
	Voltage	U_o	DC	19.5	V
	Current	I_o		90	mA
	Power	P_o		400	mW
	linear output characteristic				
	Level of protection Ex ia IIC				
	max. external inductance	L_o		5	mH
	max. external capacitance	C_o		240	nF
	Level of protection Ex ia IIB				
	max. external inductance	L_o		18	mH
	max. external capacitance	C_o		1490	nF
3.2	Temperature sensor circuit (terminals 5 up to 8)				
	Voltage	U_o	DC	19.5	V
	Current	I_o		6.4	mA
	Power	P_o		31	mW
	linear output characteristic				
	Level of protection Ex ia IIC				
	max. external capacitance	L_o		870	mH
	max. external inductance	C_o		225	nF
	Level of protection Ex ia IIB				
	max. external inductance	L_o		1000	mH
	max. external capacitance	C_o		1475	nF

3.3	Sensor circuit (terminals 1 - 2 and 3 - 4)				
	Values for each circuit				
	Voltage	U_o	DC	19.5	V
	Current	I_o		25	mA
	Power	P_o		128	mW
	linear output characteristic				
	Level of protection Ex ia IIC				
	max. external inductance	L_o		58	mH
	max. external capacitance	C_o		154	nF
	Level of protection Ex ia IIB				
	max. external inductance	L_o		210	mH
	max. external capacitance	C_o		1404	nF
4	Current output 1 (terminals 11 – 12) and				
	Current output 2 (terminals 13 - 14)				
	for type UMC3-*****1, level of protection Ex ia				
	Voltage	U_o	DC	19.2	V
	Current	I_o		84	mA
	Power	P_o		400	mW
	linear output characteristic				
	Level of protection Ex ia IIC				
	max. external inductance	L_o		5	mH
	max. external capacitance	C_o		230	nF
	Level of protection Ex ia IIB				
	max. external inductance	L_o		19.8	mH
	max. external capacitance	C_o		1.53	µF

5	Binary output 1 (terminals 16 - 17) Binary output 2 (terminals 19 -20) and Binary output 3 (terminals 33 -34) floating opto coupler output circuit for type UMC3-*****1, level of protection Ex ia IIC				
	Voltage	U_i	DC	30	V
	Current	I_i		200	mA
	Power	P_i		3	W
	Effective internal inductance	L_i		0.2	mH
	Effective internal capacitance	C_i		20	nF
6	Binary input (terminals 21 - 22) for type UMC3-*****1, level of protection Ex ia				
	Voltage	U_o	DC	30	V
	Current	I_o		15	mA
	Power	P_o		113	mW
	linear output characteristic				
	Level of protection Ex ia IIC				
	max. external inductance	L_o		160	mH
	max. external capacitance	C_o		64.8	nF
	Level of protection Ex ia IIB				
	max. external inductance	L_o		560	mH
	max. external capacitance	C_o		558.8	nF
7	Communication circuits				
7.1	Type UMC3-***D*** (terminals 39 – 40)				
7.1.1	Communication circuit Profibus PA Level of protection Ex ia IIC for use as field device in a fieldbus system in accordance with FISCO with				
	Voltage	Ui	DC	17.5	V
	Effective internal inductance	Li		negligible	
	Effective internal capacitance	Ci		1.2	nF
7.1.2	for connection to an intrinsically safe communication circuit				
	Voltage	Ui	DC	32	V
	Current	Ii		280	mA
	Power	Pi		2	W
	Effective internal inductance	Li		negligible	
	Effective internal capacitance	Ci		1.2	nF
7.2	Type UMC3-***J*** (terminals 55 – 56) Communication circuit FOUNDATION-Fieldbus for connection to a circuit with the following max. values				
7.2.1	Level of protection Ex ia IIC				
	Voltage	U_i	DC	24	V
	Current	I_i		250	mA
	Effective internal inductance	L_i		10	µH
	Effective internal capacitance	C_i		negligible	
7.2.1	Level of protection Ex ia IIB				
	Voltage	U_i	DC	17.5	V
	Current	I_i		380	mA
	Effective internal inductance	L_i		10	µH
	Effective internal capacitance	C_i		negligible	

7.3 RS485-IS (Profibus DP/Modbus), terminals 35 and 36
Type of protection Ex ia IIC

Voltage	U_o	DC	4.1	V
Current	I_o		59	mA
Power	P_o		61	mW

linear output characteristic

for the connection of an intrinsically safe circuit with the following maximum value:

Voltage	U_i	DC	4.5	V
Effective internal inductance	L_i		negligible	
Effective internal capacitance	C_i		negligible	

8 Ambient temperature range T_a

8.1 for the remote mounted control device type BE - 40 °C up to + 70 °C

8.2 Ambient temperature range T_a
for the mass flow meter converter mounted closed to the process depending on the process temperature, the installation (use of a distance element with a length of 100 mm) and the temperature class shown in the following tables

8.2.1 for types UMC3-A***1*, UMC3-A***2*, UMC3-A***4*, UMC3-B***1*, UMC3-B***2* and UMC3-B***4*

Distance element	Process temperature -20 °C up to	Ambient temperature -20 °C up to	Temperature class for use in EPL Gb
without	45 °C	45 °C	T6
without	60 °C	55 °C	T5
with	130 °C	55 °C	T4
with	150 °C	50 °C	T3

8.2.2 for types UMC3-A***5*, UMC3-A***6*, UMC3-B***5* and UMC3-B***6*

Distance element	Process temperature -40 °C up to	Ambient temperature -40 °C up to	Temperature class for use in EPL Gb
without	80 °C	60 °C	T6
without	80 °C	80 °C	T5
without	100 °C	75 °C	T5
with	130 °C	55 °C	T4
with	150 °C	50 °C	T3

8.2.3 for remote mounted converter types UMC3-C***1*, UMC3-C***2*, UMC3-****4*, UMC3-D***1*, UMC3-D***2*, UMC3-D***4*, UMC3-E***1*, UMC3-E***2*, UMC3-E***4*, UMC3-F***1*, UMC3-F***2* and UMC3-F***4*
-20 °C up to +60 °C

8.2.4 for remote mounted converter types UMC3-C***5*, UMC3-C***6*, UMC3-D***5*, UMC3-D***6*, UMC3-E***5*, UMC3-E***6*, UMC3-F***5*and UMC3-F***6*
for temperature class T6 -40 °C up to +60 °C
for temperature class T5 -40 °C up to +80 °C