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 11.0084X	issue No.:0	Certificate history:
Status:	**Current**		
Date of Issue:	**2011-11-25**	Page 1 of 3	

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

Electrical Apparatus: **Sensor type TM***
Optional accessory:

Type of Protection: **Equipment protection by intrinsic safety "i", Equipment with equipment protection level (EPL) Ga**

Marking: **Ex ia IIC T6 – T2 Ga/Gb**

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

Position: Head of Certification Body

Signature:
(for printed version)

Date: 25/11/2011

1. This certificate and schedule may only be reproduced in full.
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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

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 11.0084X

Date of Issue: **2011-11-25** Issue No.: **0**

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

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 60079-11 : 2011-06 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26 : 2006 Edition: 2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga

*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/ExTR11.0113/00

Quality Assessment Report:

DE/BVS/QAR11.0001/00

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 11.0084X

Date of Issue: **2011-11-25** Issue No.: **0**

Schedule

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

Description

The sensors in combination with a transmitter are used for flow measurement in tubes.
The sensors, which consist of magnetically excited oscillating tubes, contain as electrical components coils, resistors, temperature sensors and terminals and connectors.
The sensors can be manufactured with a connection box (mounted separately) or can be mounted close to the transmitter.
The sensor may be used in such a way that inside the measuring tubes explosive atmosphere may be present often or for a long time.

The following variations of the sensor are possible:
Type TM
Type TME
Type TMU
Type TMR
Type TMS

Parameters

See Annex

CONDITIONS OF CERTIFICATION: YES as shown below:

1 If the sensor is mounted separately, the equipotential bonding between the transmitter and the sensor has to be done.

2 For the application of the sensor in an ambient temperature of less than -20 °C and higher than +60 °C suitable cables and cable entries suitable for this condition shall be used.

3 The measuring tubes built of corrosion-resistant steel have a thickness of < 1 mm. For the use it must be sure that risks e.g. by the medium or mechanical damages are excluded.

Annexe: BVS_11_0084X_Heinrichs_Annex.pdf

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 11.0084X**
Annex

Parameters

1 Type TM resp. TME resp. TMU resp. TMR

1.1 Exciter circuit (terminals 9 - 10)

1.1.1 For type EC1

Voltage	Ui		30	V
Current	Ii		90	mA
Power	Pi		0.4	W
Effective internal capacitance	Ci		negligible	
Effective internal inductance	Li		4.5	mH

1.1.2 For type EC2 (the transformer is mounted separately)
For the connection of an intrinsically safe circuit type of protection Ex ia IIC with linear output characteristic and the following max. values:

Voltage	Uo		30	V
Current	Io		90	mA
Power	Po		1	W

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

Voltage	Ui	DC	30	V
Current	Ii		50	mA
Power	Pi		0.375	W
Effective internal capacitance	Ci		negligible	
Effective internal inductance	Li		14	mH
Output voltage	Uo	AC	0.3	V

1.3 Temperature sensor circuit (terminals 5 - 8)

Voltage	Ui	DC	30	V
Current	Ii		100	mA
Power	Pi		0.333	W
Effective internal capacitance	Ci		negligible	
Effective internal inductance	Li		negligible	

2 Type TMS

2.1 Exciter circuit (contacts 1 - 2)

Circuit EC1

Voltage	Ui	30	V
Current for Group IIC Classification	Ii	130	mA
Current for Group IIB Classification	Ii	280	mA
Power	Pi	0.5	W
Effective internal capacitance	Ci	negligible	
Effective internal inductance	Li	2	mH

Circuit EC2 (the transmitter is mounted separately)
For the connection of an intrinsically safe circuit level of protection Ex ia with the following maximum values:

Voltage	Uo	30	V
Current for Group IIC Classification	Io	130	mA
Current for Group IIB Classification	Io	280	mA
Power	Po	0.5	W

2.2 Sensor circuit (contacts 5 - 6 and 7 - 8)

Voltage	Ui	DC	30	V
Current for Group IIC Classification	Ii		50	mA
Current for Group IIB Classification	Ii		100	mA
Power	Pi		0.4	W
Effective internal capacitance	Ci	negligible		
Effective internal inductance	Li		14	mH
Output voltage	Uo	AC	0.3	V

2.3 Temperature sensor circuit (contacts 3 - 4)

Voltage	Ui	DC	30	V
Current	Ii		100	mA
Power	Pi		0.1	W
Effective internal capacitance	Ci	negligible		
Effective internal inductance	Li	negligible		

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INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

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Certificate No.:	IECEx BVS 11.0084X	Issue No: 1	Certificate history:
Status:	**Current**		Issue No. 1 (2018-11-27)
		Page 1 of 4	Issue No. 0 (2011-11-25)
Date of Issue:	**2018-11-27**		

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

Equipment: **Mass flow sensor type TM families**

Optional accessory:

Type of Protection: **Equipment protection by intrinsic safety "i", Equipment with equipment protection level (EPL) Ga**

Marking:
Ex ia IIC T2...T6 Ga/Gb
See tables section 3 for details

Approved for issue on behalf of the IECEx Certification Body: Jörg Koch

Position: Head of Certification Body

Signature:
(for printed version)

Date: 27.11.18

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Certificate issued by:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

DEKRA EXAM GmbH

IECEx Certificate of Conformity

Certificate No:	IECEx BVS 11.0084X	Issue No: 1
Date of Issue:	**2018-11-27**	Page 2 of 4
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 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 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26 : 2014-10 Edition:3.0	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga

*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/ExTR11.0113/01

Quality Assessment Report:

DE/BVS/QAR11.0001/05

IECEx Certificate of Conformity

Certificate No:	IECEx BVS 11.0084X	Issue No: 1
Date of Issue:	**2018-11-27**	Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

General product information

The Coriolis sensors are used in combination with a transmitter for mass-flow measurement in pipes. The mass flow sensors consisting of magnetically excited vibrating tubes, contains the electrical components, coils, resistors, temperature sensors as well as terminals and connectors for connection to the associated transmitter. The transmitter can be mounted directly on the sensor or separately connected by a cable.
The design of the sensor system is variable. The sensors can be adapted to different plant and process conditions by using a variety of materials and process connections. The Coriolis sensor can be used in applications where an explosive atmosphere can be present in the measuring tubes frequently or over a longer period of time.

Type TM-***-********-****-L-*-*-*
Type TME-***-*******-L-*-*-*
Type TMU-****-****-***-*L-**-*-*
Type TMR-***-********-****-L-*-*
Type TM-SH-****-****-***-*L-**-*-*
Type TMS-****-****-***-*A-**-*

Model type code

See Annex

Parameters

See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

1 If the sensor is mounted separately from the transmitter, equipotential bonding between the transmitter and the sensor must be guaranteed.

2 For the application of the sensor in an ambient temperature of less than -20 °C and higher than +60 °C cables and cable entries suitable for this condition shall be used.

3 The measuring tubes built of corrosion-resistant steel may have a thickness of < 1 mm. During installation and operation it must be ensured that risks e.g. by the medium or by mechanical damages are excluded.

IECEx Certificate of Conformity

Certificate No:	IECEx BVS 11.0084X	Issue No: 1
Date of Issue:	**2018-11-27**	Page 4 of 4

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

Subject of this supplement are the following points:

- Introduction of new type sensors: TM-***-********-****-L-*-*-* resp. TME-***-*******-L-*-*-* resp. TMU-****-****-***-*L-**-*-* resp. TMR-***-********-****-L-*-* resp. TM-SH-****-****-***-*L-**-*-*.
- Adjustment of the electrical parameters for the new sensors.
- Modifications of the junction box, the connection board and the limiter circuitry.
- Introduction of a new set of printed circuit boards for coil mounting in the type TM-SH-****-****-***-*L-**-*-*.
- Extension by alternative designs with amendments to the excitation circuit and temperature sensor.
- The sensor types TM, TME, TMU and TMR approved with the certificate IECEx BVS 11.0084X issue 0, shall no longer be produced, and are therefore no longer available for delivery
- The type TMS-****-****-***-*A-**-* remains unchanged

Annex:

BVS_11_0084X_Heinrichs_Annex_issue1.pdf