



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 04.0006X** Issue No.: **0**

Status: **Current**

Date of Issue: **2004-04-02** Page 1 of 4

Applicant: **Micro Motion, Inc.
Boulder, Co. 80301, USA
United States Of America**

Electrical Apparatus: **Transmitter type *700*******
Optional accessory:

Type of Protection: **Flameproof enclosures, Intrinsic safety**

Marking: **Ex d[ib] IIB+H2 T6 or
Ex de[ib] IIB+H2 T6 or
Ex d[ib] IIC T6 or
Ex de[ib] IIC T6 or
Ex d[ia/ib] IIC T6 or
Ex de[ia/ib] IIC T6 or
Ex d[ia/ib] IIB+H2 T6 or
Ex de[ia/ib] IIB+H2 T6
see description in Annex**


Approved for issue on behalf of the IECEx
Certification Body:

Dr.-Ing. Michael Wittler

Position:

Head of Testing Laboratory

Signature:
(for printed version)



Date:

02.04.2004

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3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

**EXAM BBG Prüf- und Zertifizier
GmbH**

Fachstelle für Sicherheit elektrischer Betriebsmittel – BVS
Dinnendahlstrasse 9
44809 Bochum
Germany



BBG Prüf- und Zertifizier GmbH



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Page 2 of 4

Manufacturer: **Micro Motion, Inc.**
7070 Winchester Circle
Boulder, CO 80301
United States of America

Manufacturing location(s):

Micro Motion, Inc.
7070 Winchester Circle
Boulder, CO 80301
United States of America

Micro Motion Inc.
Ave. Miguel de Cervantes 111
Complejo Industrial
Chihuahua
Chihuahua 31109
Mexico

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 manufacture'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 : 2000 Edition: 3.1	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-1 : 2001 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosures 'd'
IEC 60079-11 : 1999 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i'
IEC 60079-7 : 2001 Edition: 3	Electrical apparatus for explosive gas atmospheres - Part 7: Increased safety 'e'

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

IECEX ATR:
DE/BVS/04/2023

File Reference:
A 20020549



IECEX Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

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Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The transmitter is, in combination with a sensor, used for measurement of mass flow and data transmission. The electrical circuitry of the transmitters is mounted inside a metal enclosure type 1700/2700... which is divided into three compartments.

In the compartment type of protection "Flameproof Enclosure" the Terminal Board, Power Supply Board, I.S. output Board (for type *700*1*D***** or non-I.S. output board (for type *700*1*A***** and type 2700*1*(B or C)***** or Fieldbus Board (only for type 2700*1*(E or G)***** and display board (for type *700*1(1 or 4)***** are mounted. The compartment "Increased Safety" (type *700*1**E*****) or "Flameproof Enclosure" (type *700*1***I*****) is equipped with terminals for the connection of intrinsically safe circuits as well as non intrinsically safe circuits.

The enclosure is constructed with a terminal compartment for the connection of remotely operating intrinsically safe sensors (type *700R1*****).

Alternatively, the enclosure can be mounted directly to the sensor via a transition compartment for the incorporation of the signal processing device type 700 in accordance with IEC Ex BVS 04.0002 U (type *700I1*****). This type of mounting has to be certified separately.

The transmitter type *700C1***** is constructed with a terminal compartment for the incorporation of the signal processing device type 700 (IEC Ex BVS 04.0002 U) and a connection board. The transmitter type *700B1***** is to be used with a remotely mounted processor in accordance with IEC Ex BVS 04.0005.

CONDITIONS OF CERTIFICATION: YES as shown below:

Provision is made for threaded entries in the walls for the fitting of suitable and certified cable glands.

For the application of the transmitter in an ambient temperature of less than - 20 °C suitable cable and cable entries or conduit entries certified for this condition shall be used.

If certified conduit entries are used for the connection of the transmitter enclosure, the associated stopping boxes shall be installed immediately at the enclosure.



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Page 4 of 4

Additional information:

Subject and type

Transmitter type *700******

Instead of the *** in the complete denomination letters and numerals will be inserted which characterize the following variations:

Type a700b1cdefgggg

with

- a numeral 1 = Single Variable Transmitter or
2 = Multi Variable Transmitter
- b letter for mounting
R = 4-wire remote transmitter
I = Integral mount transmitter
B = 4-wire remote transmitter with 9-wire remote core processor
C = 9-wire remote transmitter (requires a sensor with J-box)
- c 1 = with Display = Ex *** IIB + H2
3 = without Display = Ex *** IIC
4 = with Display = Ex *** IIC
- d A, B, C = non-IS signal circuits
D = IS signal circuits
E or G = Fieldbus
- e letter for conduits
- f I = Ex d ****
E = Ex de ***
- g Options without influence on explosion protection

The transmitter type 2700*1*E***** and type 2700*1*G***** may also be connected to a circuit FIELDBUS in accordance with the FISCO model (IEC TS 60079-27:2002).



IECEX Certificate of Conformity



Certificate No.: **IECEX BVS 04.0006X**
Annex
Page 1 of 5

Subject and type

Transmitter type *700*1*****

Instead of the *** in the complete denomination letters and numerals will be inserted which characterize the following variations:

Type a700b1cdefgggg

with

- a numeral 1 = Single Variable Transmitter or 2 = Multi Variable Transmitter
- b letter for mounting
 R = 4-wire remote transmitter
 I = Integral mount transmitter
 B = 4-wire remote transmitter with 9-wire remote core processor
 C = 9-wire remote transmitter (requires a sensor with J-box)
- c 1 = with Display = Ex *** IIB + H₂
 3 = without Display = Ex *** IIC
 4 = with Display = Ex *** IIC
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 E or G = Fieldbus
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The transmitter type 2700*1*E***** and type 2700*1*G***** may also be connected to a circuit FIELDBUS in accordance with the FISCO model (IEC TS 60079-27:2002).

Due to the construction the transmitter gets the following additional marking:

Type	Marking
*700 ¹ 1 ^{1 2} *I****	Ex d[ib] IIB+H ₂ T6
*700 ¹ 1 ^{1 2} *E****	Ex de[ib] IIB+H ₂ T6
*700 ¹ 1 ^{3 2} *I****	Ex d[ib] IIC T6
*700 ¹ 1 ^{3 2} *E****	Ex de[ib] IIC T6
*700 ¹ 1 ^{1 4} *I****	Ex d[ia/ib] IIB+H ₂ T6
*700 ¹ 1 ^{1 4} *E****	Ex de[ia/ib] IIB+H ₂ T6
*700 ¹ 1 ^{3 4} *I****	Ex d[ia/ib] IIC T6
*700 ¹ 1 ^{3 4} *E****	Ex de[ia/ib] IIC T6
*700 ⁵ 1 ^{1 2} *I****	Ex d[ib] IIB+H ₂ T5
*700 ⁵ 1 ^{1 2} *E****	Ex de[ib] IIB+H ₂ T5
*700 ⁵ 1 ^{3 2} *I****	Ex d[ib] IIC T5
*700 ⁵ 1 ^{3 2} *E****	Ex de[ib] IIC T5
*700 ⁵ 1 ^{1 4} *I****	Ex d[ia/ib] IIB+H ₂ T5
*700 ⁵ 1 ^{1 4} *E****	Ex de[ia/ib] IIB+H ₂ T5
*700 ⁵ 1 ^{3 4} *I****	Ex d[ia/ib] IIC T5
*700 ⁵ 1 ^{3 4} *E****	Ex de[ia/ib] IIC T5



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Certificate No.: IECEX BVS 04.0006X
Annex
Page 2 of 5

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- ²⁾ at this place the letter A, B or C may be inserted
- ³⁾ at this place the numerals 3 or 4 may be inserted
- ⁴⁾ at this place the letter D, E or G may be inserted
- ⁵⁾ at this place the letter C or I may be inserted

Parameters

1	mains circuit (terminals 9 - 10) voltage max. voltage	Um	AC/DC AC/DC	18 - 240 V + 10 % 265	V V
2	non intrinsically safe signal circuits (terminals 1 - 6), only for types *700*1*A*****, 2700*1*B***** and 2700*1*C***** voltage	Um	AC/DC	60	V
3	intrinsically safe power and signal circuits for types *700R1***** and *700B1***** terminals 1, 2, 3 and 4 in IS terminal compartment voltage current limited by a fuse with a nominal value of power	Uo Io Po	DC	17,22 0,484 0,16 2,05	V A A W
	type of protection Ex ib IIC max. external inductance max. external capacitance max. inductance/resistance ratio	Lo Co Lo/Ro		151 333 17,06	μH nF μH/Ω
	type of protection Ex ib IIB max. external inductance max. external capacitance max. inductance/resistance ratio	Lo Co Lo/Ro		607 2,04 68,2	μH μF μH/Ω
4	intrinsically safe circuit FIELDBUS (terminals Fieldbus 1 and 2) type of protection Ex ia IIC only for type 2700*1*E***** and type 2700*1*G***** voltage current power effective internal capacitance effective internal inductance	Ui Ii Pi Ci Li	DC	30 380 5,32 negligible negligible	V mA W

for the connection of a FIELDBUS circuit in accordance with FISCO model
(IEC TS 60079-27:2002).



IECEX Certificate of Conformity



Certificate No.: IECEX BVS 04.0006X
Annex
Page 3 of 5

5	intrinsically safe signal circuits type of protection Ex ia IIC for type *700*1*D*****				
5.1	terminals 1 - 2: mA-output1 and terminals 5 - 6: mA-output2 (mA-output2 only for type 2700*1*D*****) values for each circuit				
	voltage	U _i	DC	30	V
	current	I _i		300	mA
	power	P _i		1	W
	effective internal inductance	L _i		negligible	
	effective internal capacitance	C _i		negligible	
5.2	terminals 3 - 4: frequency output				
	voltage	U _i	DC	30	V
	current	I _i		100	mA
	power	P _i		0,75	W
	effective internal inductance	L _i		negligible	
	effective internal capacitance	C _i		negligible	
6	intrinsically safe power and signal circuits for type *700C1*****				
6.1	drive circuit (terminals 3 and 4)				
	voltage	U _o	DC	10,5	V
	current	I _o		2,45	A
	power	P _o		2,54	W
	internal resistance	R _i		4,32	Ω
	for group IIC				
	max. external capacitance	C _o		2,41	μF
	max. external inductance	L _o		5,9	μH
	max. external inductance/resistance ratio	L _o /R _o		5,5	μH/Ω
	for group IIB				
	max. external capacitance	C _o		16,8	μF
	max. external inductance	L _o		24	μH
	max. external inductance/resistance ratio	L _o /R _o		22	μH/Ω
	The maximum external inductance L (sensor coil) can be calculated with the following term:				
	$L = 2 \times E \times \left(\frac{R_i + R_o}{1.5 \times U_o} \right)^2$				
	whereby E = 40 μJ for group IIC and E = 160 μJ for group IIB will be inserted.				
6.2	pick-off circuits (terminals 5- 6 and 7 - 8)				
	voltage	U _o	DC	17,3	V
	current	I _o		6,9	mA
	power	P _o		30	mW



IECEX Certificate of Conformity



Certificate No.: **IECEX BVS 04.0006X**

Annex

Page 4 of 5

	for group IIC				
	max. external capacitance	Co		353	nF
	max. external inductance	Lo		742	mH
	max. external inductance/resistance ratio	Lo/Ro		1,19	mH/Ω
	for group IIB				
	max. external capacitance	Co		2,06	μF
	max. external inductance	Lo		2,97	H
	max. external inductance/resistance ratio	Lo/Ro		4,75	mH/Ω
6.3	temperature circuit (terminals 1, 2 and 9)				
	voltage	Uo	DC	17,3	V
	current	Io		26	mA
	power	Po		112	mW
	for group IIC				
	max. external capacitance	Co		353	nF
	max. external inductance	Lo		52,6	mH
	max. external inductance/resistance ratio	Lo/Ro		0,32	mH/Ω
	for group IIB				
	max. external capacitance	Co		2,06	μF
	max. external inductance	Lo		210	mH
	max. external inductance/resistance ratio	Lo/Ro		1,26	mH/Ω
7	ambient temperature range	Ta			
	for type *700(B or R)1(1 or 3)*****			-40 °C ≤ Ta ≤ +60 °C	
	for type *700(C or I)1*****			-40 °C ≤ Ta ≤ +55 °C	
	for type *700(B or R)14*****			-20 °C ≤ Ta ≤ +60 °C	
	for type *700(C or I)14*****			-20 °C ≤ Ta ≤ +55 °C	



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Certificate No.: **IECEX BVS 04.0006X**

Annex

Page 5 of 5

Marking

- The name of the manufacturer or his trademark
Serial number
Certificate number
-40 °C ≤ Ta ≤ +60 °C for type *700(B or R)1(1 or 3)*****
-40 °C ≤ Ta ≤ +55 °C for type *700(C or I)1(1 or 3)*****
-20 °C ≤ Ta ≤ +60 °C for type *700(B or R)14*****
-20 °C ≤ Ta ≤ +55 °C for type *700(C or I)14*****

type	marking
*700 ¹⁾ 1 ²⁾ *I****	Ex d[ib] IIB+H ₂ T6
*700 ¹⁾ 1 ²⁾ *E****	Ex de[ib] IIB+H ₂ T6
*700 ¹⁾ 1 ³⁾²⁾ *I****	Ex d[ib] IIC T6
*700 ¹⁾ 1 ³⁾²⁾ *E****	Ex de[ib] IIC T6
*700 ¹⁾ 1 ⁴⁾ *I****	Ex d[ia/ib] IIB+H ₂ T6
*700 ¹⁾ 1 ⁴⁾ *E****	Ex de[ia/ib] IIB+H ₂ T6
*700 ¹⁾ 1 ³⁾⁴⁾ *I****	Ex d[ia/ib] IIC T6
*700 ¹⁾ 1 ³⁾⁴⁾ *E****	Ex de[ia/ib] IIC T6
*700 ⁵⁾ 1 ²⁾ *I****	Ex d[ib] IIB+H ₂ T5
*700 ⁵⁾ 1 ²⁾ *E****	Ex de[ib] IIB+H ₂ T5
*700 ⁵⁾ 1 ³⁾²⁾ *I****	Ex d[ib] IIC T5
*700 ⁵⁾ 1 ³⁾²⁾ *E****	Ex de[ib] IIC T5
*700 ⁵⁾ 1 ⁴⁾ *I****	Ex d[ia/ib] IIB+H ₂ T5
*700 ⁵⁾ 1 ⁴⁾ *E****	Ex de[ia/ib] IIB+H ₂ T5
*700 ⁵⁾ 1 ³⁾⁴⁾ *I****	Ex d[ia/ib] IIC T5
*700 ⁵⁾ 1 ³⁾⁴⁾ *E****	Ex de[ia/ib] IIC T5

¹⁾ at this place the letter B or R may be inserted

²⁾ at this place the letter A, B or C may be inserted

³⁾ at this place the numerals 3 or 4 may be inserted

⁴⁾ at this place the letter D, E or G may be inserted

⁵⁾ at this place the letter C, I or S 4 may be inserted

- Warning lable:
Close to the flameproof cover(s): 5 min delay time after switch off
- For models 2700***(E or G)***** the following additional text is required:
FISCO Field device Ex ia IIC



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IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx BVS 04.0006X** Issue No.: **1**
Status: **Current**
Date of Issue: **2005-04-18** Page **1** of **5**
Applicant: **Micro Motion, Inc.**
Boulder, Co. 80301, USA
United States Of America

Electrical Apparatus: **Transmitter type *700*******
Optional accessory:

Type of Protection: **Flameproof enclosures, Intrinsic safety**

Marking: **Ex d[ib] IIB+H2 T6 or**
Ex de[ib] IIB+H2 T6 or
Ex d[ib] IIC T6 or
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Ex d[ia/ib] IIB+H2 T6 or
Ex de[ia/ib] IIB+H2 T6
see description in Annex


Approved for issue on behalf of the IECEx
Certification Body:

Dr. R. Jockers

Position:

Head of Certification Body

Signature:
(for printed version)


18. 4. 05

Date:

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Dinnendahlstrasse 9
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BBG Prüf- und Zertifizier GmbH



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Page 2 of 5

Manufacturer: **Micro Motion, Inc.**
7070 Winchester Circle
Boulder, CO 80301
United States of America

Manufacturing location(s):

Micro Motion, Inc.
7070 Winchester Circle
Boulder, CO 80301
United States of America

Micro Motion Inc.
Ave. Miguel de Cervantes 111
Complejo Industrial
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Chihuahua 31109
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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 : 2000 Edition: 3.1	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
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IEC 60079-11 : 1999 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i'
IEC 60079-7 : 2001 Edition: 3	Electrical apparatus for explosive gas atmospheres - Part 7: Increased safety 'e'

*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

IECEX ATR:

DE/BVS/04/2023

DE/BVS/04/2023/N1

File Reference:

A 20020549

A 20040486



IECEx Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

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Page 3 of 5

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The transmitter is, in combination with a sensor, used for measurement of mass flow and data transmission. The electrical circuitry of the transmitters is mounted inside a metal enclosure type 1700/2700..*.*.. which is divided into three compartments.

In the compartment type of protection "Flameproof Enclosure" the Terminal Board, Power Supply Board, I.S. output Board (for type *700*1*D***** or non-I.S. output board (for type *700*1*A***** and type 2700*1*(B or C)***** or Fieldbus Board (only for type 2700*1*(E or G)***** and display board (for type *700*1(1 or 4)***** are mounted. The compartment "Increased Safety" (type *700*1***E****) or "Flameproof Enclosure" (type *700*1****1****) is equipped with terminals for the connection of intrinsically safe circuits as well as non intrinsically safe circuits.

The enclosure is constructed with a terminal compartment for the connection of remotely operating intrinsically safe sensors (type *700R1*****).

Alternatively, the enclosure can be mounted directly to the sensor via a transition compartment for the incorporation of the signal processing device type 700 in accordance with IEC Ex BVS 04.0002 U (type *700I1*****). This type of mounting has to be certified separately.

The transmitter type *700C1***** is constructed with a terminal compartment for the incorporation of the signal processing device type 700 (IEC Ex BVS 04.0002 U) and a connection board. The transmitter type *700B1***** is to be used with a remotely mounted processor in accordance with IEC Ex BVS 04.0005.

CONDITIONS OF CERTIFICATION: YES as shown below:

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If certified conduit entries are used for the connection of the transmitter enclosure, the associated stopping boxes shall be installed immediately at the enclosure.



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Page **4** of **5**

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

Modifications

The transmitter can be modified (new backlight display).

In the compartment type of protection "Flameproof Enclosure" the Terminal Board, Power Supply Board, I.S. output Board (for type *700*1*D*****) or non-I.S. output board (for type *700*1*(A, B or C)*****) or Fieldbus Board (only for type 2700*1*(E or G)*****) and display board (for type *700*1(1, 2, 4 or 5)*****) are mounted.

Details see Annex for Issue 1.



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Page 5 of 5

Additional information:

Subject and type

Transmitter type *700******

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Type a700b1cdefgggg
with

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see description in Annex


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Dr. R. Jockers

Position:

Head of Certification Body

Signature:
(for printed version)


05.02.2007

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Manufacturer: **Micro Motion, Inc.**
7070 Winchester Circle
Boulder, CO 80301
United States of America

Manufacturing location(s):

Micro Motion, Inc.
7070 Winchester Circle
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IEC 60079-11 : 1999 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i'
IEC 60079-7 : 2001 Edition: 3	Electrical apparatus for explosive gas atmospheres - Part 7: Increased safety 'e'

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

IECEX ATR:	File Reference:
DE/BVS/04/2023	A 20020549
DE/BVS/04/2023/N1	A 20040486
DE/BVS/04/2023/N2	A 20060813



IECEx Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

Date of Issue: 2007-02-05

Issue No.: 2

Page 3 of 5

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The transmitter is, in combination with a sensor, used for measurement of mass flow and data transmission. The electrical circuitry of the transmitters is mounted inside a metal enclosure type 1700/2700..*..*.. which is divided into three compartments.

In the compartment type of protection "Flameproof Enclosure" the Terminal Board, Power Supply Board, I.S. output Board (for type *700*1*D***** or non-I.S. output board (for type *700*1*A***** and type 2700*1*(B or C)***** or Fieldbus Board (only for type 2700*1*(E or G)*****)) and display board (for type *700*1(1 or 4)***** are mounted.

The compartment "Increased Safety" (type *700*1**E****) or "Flameproof Enclosure" (type *700*1***I****) is equipped with terminals for the connection of intrinsically safe circuits as well as non intrinsically safe circuits.

The enclosure is constructed with a terminal compartment for the connection of remotely operating intrinsically safe sensors (type *700R1*****).

Alternatively, the enclosure can be mounted directly to the sensor via a transition compartment for the incorporation of the signal processing device type 700 in accordance with IEC Ex BVS 04.0002 U (type *700I1*****). This type of mounting has to be certified separately.

The transmitter type *700C1***** is constructed with a terminal compartment for the incorporation of the signal processing device type 700 (IEC Ex BVS 04.0002 U) and a connection board. The transmitter type *700B1***** is to be used with a remotely mounted processor in accordance with IEC Ex BVS 04.0005.

CONDITIONS OF CERTIFICATION: YES as shown below:

Provision is made for threaded entries in the walls for the fitting of suitable and certified cable glands.

For the application of the transmitter in an ambient temperature of less than - 20 °C suitable cable and cable entries or conduit entries certified for this condition shall be used.

If certified conduit entries are used for the connection of the transmitter enclosure, the associated stopping boxes shall be installed immediately at the enclosure.



IECEx Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

Date of Issue: 2007-02-05

Issue No.: 2

Page 4 of 5

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

Modifications

Issue 1

The transmitter can be modified (new backlight display).

In the compartment type of protection "Flameproof Enclosure" the Terminal Board, Power Supply Board, I.S. output Board (for type *700*1*D***** or non-I.S. output board (for type *700*1*(A, B or C)***** or Fieldbus Board (only for type 2700*1*(E or G)***** and display board (for type *700*1(1, 2, 4 or 5)***** are mounted.

Details see Annex for Issue 1.

Issue 2

The Power Supply Board and the Fieldbus Board, mounted inside the compartment type of protection „Flameproof Enclosure“, have been modified slightly. The rest of the apparatus remains unchanged.



IECEx Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

Date of Issue: 2007-02-05

Issue No.: 2

Page 5 of 5

Additional information:

Subject and type

Transmitter type *700*****

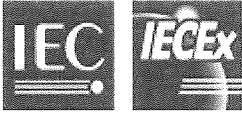
Instead of the *** in the complete denomination letters and numerals will be inserted which characterize the following variations:

Type a700b1cdefgggg

with

- a numeral 1 = Single Variable Transmitter or
2 = Multi Variable Transmitter
- b letter for mounting
R = 4-wire remote transmitter
I = Integral mount transmitter
B = 4-wire remote transmitter with 9-wire remote core processor
C = 9-wire remote transmitter (requires a sensor with J-box)
- c 1 = with Display = Ex *** IIB + H2
3 = without Display = Ex *** IIC
4 = with Display = Ex *** IIC
- d A, B, C = non-IS signal circuits
D = IS signal circuits
E or G = Fieldbus
- e letter for conduits
- f I = Ex d ****
E = Ex de ***
- g Options without influence on explosion protection

The transmitter type 2700*1*E***** and type 2700*1*G***** may also be connected to a circuit FIELDBUS in accordance with the FISCO model (IEC TS 60079-27:2002).



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 04.0006X issue No.:3

Certificate history:
Issue No. 3 (2007-7-16)
Issue No. 2 (2007-2-5)

Status: **Current**

Date of Issue: 2007-07-16 Page 1 of 5

Applicant: **Micro Motion, Inc.**
Boulder, Co. 80301, USA
United States of America

Electrical Apparatus: **Transmitter type *700*******
Optional accessory:


Type of Protection: **Flameproof enclosures, Intrinsic safety**

Marking: **Ex d[ib] IIB+H2 T6 or
Ex de[ib] IIB+H2 T6 or
Ex d[ib] IIC T6 or
Ex de[ib] IIC T6 or
Ex d[ia/ib] IIC T6 or
Ex de[ia/ib] IIC T6 or
Ex d[ia/ib] IIB+H2 T6 or
Ex de[ia/ib] IIB+H2 T6
see description in Annex**

Approved for issue on behalf of the IECEx Certification Body: Dr. R. Jockers

Position: Head of Certification Body

Signature:
(for printed version)


16.07.2007

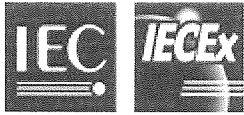
Date:

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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 04.0006X

Date of Issue: 2007-07-16

Issue No.: 3

Page 2 of 5

Manufacturer: **Micro Motion, Inc.**
7070 Winchester Circle
Boulder, CO 80301
United States of America

Manufacturing location(s):

Micro Motion, Inc.
7070 Winchester Circle
Boulder, CO 80301
United States of America

Micro Motion Inc.
Ave. Miguel de Cervantes 111
Complejo Industrial
Chihuahua
Chihuahua 31109
Mexico

**Emerson Process
Management Co., Ltd**
1277 Xin Jin Qiao Rd
Jin Qiao Export Processing
Zone
Pudong
Shanghai 201206
China

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 manufacture'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 : 2000 Edition: 3.1	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-1 : 2001 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosures 'd'
IEC 60079-11 : 1999 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i'
IEC 60079-27 : 2005-04 Edition: 1.0	Electrical apparatus for explosive atmospheres- Part 27: Fieldbus intrinsically safe concept (FISCO) and Fieldbus non-incendive concept (FINCO)
IEC 60079-7 : 2001 Edition: 3	Electrical apparatus for explosive gas atmospheres - Part 7: Increased safety 'e'

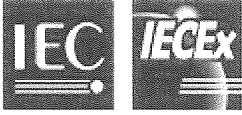
This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

IECEx ATR:
DE/BVS/ExTR06.0008/00 and DE/BVS/ExTR06.0008/01 and
DE/BVS/ExTR06.0008/02 and DE/BVS/ExTR06.0008/03

File Reference:
A 20020549 and A 20040486 and
A 20060813 and A 20070194



IECEx Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

Date of Issue: 2007-07-16

Issue No.: 3

Page 3 of 5

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The transmitter is, in combination with a sensor, used for measurement of mass flow and data transmission. The electrical circuitry of the transmitters is mounted inside a metal enclosure type 1700/2700.*..*.. which is divided into three compartments.

In the compartment type of protection "Flameproof Enclosure" the Terminal Board, Power Supply Board, I.S. output Board (for type *700*1*D***** or non-I.S. output board (for type *700*1*A***** and type 2700*1*(B or C)***** or Fieldbus Board (only for type 2700*1*(E or G)***** and display board (for type *700*1(1 or 4)***** are mounted.

The compartment "Increased Safety" (type *700*1***E*****) or "Flameproof Enclosure" (type *700*1***I*****) is equipped with terminals for the connection of intrinsically safe circuits as well as non intrinsically safe circuits.

The enclosure is constructed with a terminal compartment for the connection of remotely operating intrinsically safe sensors (type *700R1*****).

Alternatively, the enclosure can be mounted directly to the sensor via a transition compartment for the incorporation of the signal processing device type 700 in accordance with IEC Ex BVS 04.0002 U (type *700I1*****). This type of mounting has to be certified separately.

The transmitter type *700C1***** is constructed with a terminal compartment for the incorporation of the signal processing device type 700 (IEC Ex BVS 04.0002 U) and a connection board. The transmitter type *700B1***** is to be used with a remotely mounted processor in accordance with IEC Ex BVS 04.0005.

CONDITIONS OF CERTIFICATION: YES as shown below:

Provision is made for threaded entries in the walls for the fitting of suitable and certified cable glands.

For the application of the transmitter in an ambient temperature of less than - 20 °C suitable cable and cable entries or conduit entries certified for this condition shall be used.

If certified conduit entries are used for the connection of the transmitter enclosure, the associated stopping boxes shall be installed immediately at the enclosure.



IECEx Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

Date of Issue: 2007-07-16

Issue No.: 3

Page 4 of 5

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

Modifications

Issue 3

The manufacturing location Emerson Process Management Co., Ltd, Pudong Shanghai, People's Republic of China was added.

The following modifications of the transmitter are possible:

Use of a revised Power Supply Board.

Parameter Um of the non intrinsically safe signal circuits has been changed into 33V.

Parameter Ui of the intrinsically safe circuit FIELDBUS has been changed into 33V.

A new variation, which may also be connected to a circuit FIELDBUS in accordance with the FNICO model (IEC 60079-27:2005) is available:

Type *700*1*N***.**

The manufacturer Micro Motion Inc., Boulder, USA, changed the ExCB for quality supervision. Responsible for all production sites is now DNV.



IECEx Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

Date of Issue: 2007-07-16

Issue No.: 3

Page 5 of 5

Additional information:

Subject and type

Transmitter type *700*****

Instead of the *** in the complete denomination letters and numerals will be inserted which characterize the following variations:

Type a700b1cdefggg

with

- a numeral 1 = Single Variable Transmitter or
2 = Multi Variable Transmitter
- b letter for mounting
R = 4-wire remote transmitter
I = Integral mount transmitter
B = 4-wire remote transmitter with 9-wire remote core processor
C = 9-wire remote transmitter (requires a sensor with J-box)
- c 1 = with Display = Ex *** IIB + H2
3 = without Display = Ex *** IIC
4 = with Display = Ex *** IIC
- d A, B, C = non-IS signal circuits
D = IS signal circuits
E or G = Fieldbus
- e letter for conduits
- f I = Ex d ****
E = Ex de ***
- g Options without influence on explosion protection

The transmitter type 2700*1*E***** and type 2700*1*C***** may also be connected to a circuit FIELDBUS in accordance with the FISCO model (IEC TS 60079-27:2002).



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 04.0006X issue No.: 4

Status: Current

Certificate history:
Issue No. 4 (2008-1-10)
Issue No. 3 (2007-7-16)
Issue No. 2 (2007-2-5)

Date of Issue: 2008-01-10 Page 1 of 4

Applicant: **Micro Motion, Inc.**
Boulder, Co. 80301, USA
United States of America

Electrical Apparatus: Transmitter type *7*0*****
Optional accessory:


Type of Protection: Flameproof enclosures; Intrinsic safety; Increased safety; Fieldbus intrinsically safe concept (FISCO) and Fieldbus non-incendive concept (FNICO)

Marking: Ex d[ib] IIB+H2 T6 or
Ex de[ib] IIB+H2 T6 or
Ex d[ib] IIC T6 or
Ex de[ib] IIC T6 or
Ex d[ja/ib] IIC T6 or
Ex de[ja/ib] IIC T6 or
Ex d[ja/ib] IIB+H2 T6 or
Ex de[ja/ib] IIB+H2 T6
see description in Annex

Approved for issue on behalf of the IECEx Certification Body: Dr. R. Jockers

Position: Head of Certification Body

Signature:
(for printed version)



10.01.2008

Date:

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 04.0006X

Date of Issue: 2008-01-10

Issue No.: 4

Page 2 of 4

Manufacturer: **Micro Motion, Inc.**
7070 Winchester Circle
Boulder, CO 80301
United States of America

Manufacturing location(s):

Micro Motion, Inc.
7070 Winchester Circle
Boulder, CO 80301
United States of America

Micro Motion Inc.
Ave. Miguel de Cervantes
111
Complejo Industrial
Chihuahua
Chihuahua 31109
Mexico

**Emerson Process
Management Co., Ltd**
1277 Xin Jin Qiao Rd
Jin Qiao Export Processing
Zone
Pudong
Shanghai 201206
China

**Emerson Process
Management Flow BV**
Neonstraat 1
6718 WX Ede
The Netherlands

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 : 2000 Edition: 3.1	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-1 : 2001 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosures 'd'
IEC 60079-11 : 1999 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i'
IEC 60079-27 : 2005-04 Edition: 1.0	Electrical apparatus for explosive atmospheres- Part 27: Fieldbus intrinsically safe concept (FISCO) and Fieldbus non-incendive concept (FINCO)
IEC 60079-7 : 2001 Edition: 3	Electrical apparatus for explosive gas atmospheres - Part 7: Increased safety 'e'

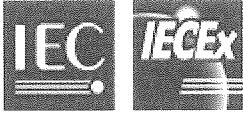
This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

IECEx ATR:
DE/BVS/ExTR06.0008/00 and DE/BVS/ExTR06.0008/01 and
DE/BVS/ExTR06.0008/02 and DE/BVS/ExTR06.0008/03 and
DE/BVS/ExTR06.0008/04

File Reference:
A 20020549 and A 20040486 and
A 20060813 and A 20070194 and
A 20070793



IECEx Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

Date of Issue: 2008-01-10

Issue No.: 4

Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The transmitter is, in combination with a sensor, used for measurement of mass flow and data transmission. The electrical circuitry of the transmitters is mounted inside a metal enclosure type 1700/2700..*..*.. which is divided into three compartments. In the compartment type of protection "Flameproof Enclosure" the Terminal Board, Power Supply Board, I.S. output Board (for type *700*1*D***** or non-I.S. output board (for type *700*1*A***** and type 2700*1*(B or C)***** or Fieldbus Board (only for type 2700*1*(E or G)***** and display board (for type *700*1(1 or 4)***** are mounted. The compartment "Increased Safety" (type *700*1**E****) or "Flameproof Enclosure" (type *700*1*****) is equipped with terminals for the connection of intrinsically safe circuits as well as non intrinsically safe circuits. The enclosure is constructed with a terminal compartment for the connection of remotely operating intrinsically safe sensors (type *700R1*****). Alternatively, the enclosure can be mounted directly to the sensor via a transition compartment for the incorporation of the signal processing device type 700 in accordance with IEC Ex BVS 04.0002 U (type *700I1*****). This type of mounting has to be certified separately. The transmitter type *700C1***** is constructed with a terminal compartment for the incorporation of the signal processing device type 700 (IEC Ex BVS 04.0002 U) and a connection board. The transmitter type *700B1***** is to be used with a remotely mounted processor in accordance with IEC Ex BVS 04.0005.

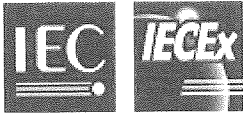
A variation, type 750(D or E)1*(J or K)*****, is also available.

CONDITIONS OF CERTIFICATION: YES as shown below:

Provision is made for threaded entries in the walls for the fitting of suitable and certified cable glands.

For the application of the transmitter in an ambient temperature of less than - 20 °C suitable cable and cable entries or conduit entries certified for this condition shall be used.

If certified conduit entries are used for the connection of the transmitter enclosure, the associated stopping boxes shall be installed immediately at the enclosure.



IECEX Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

Date of Issue: 2008-01-10

Issue No.: 4

Page 4 of 4

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

Issue 4:

The manufacturing location Emerson Process Management Flow BV., Ede, The Netherlands, was added.

The following modifications of the transmitter are possible:

- Analog Board, Fieldbus Board and Terminal-EMI Board have been revised.
- A new variation is available: type *750(D or E)1*(J or K)*****.

Modified parameters

See Annex for Issue 4



IECEX Certificate of Conformity



Certificate No.: IECEX BVS 04.0006X Issue 4
Annex
Page 1 of 3

Modified parameters

- 1 Non intrinsically safe signal circuits (terminals 1-6), only for types *700*1*A*****, *700*1*B*****, *700*1*C*****, *750*1*J*****, and *750*1*K*****
- | | | | |
|---------|----|---------|---|
| Voltage | Um | AC/DC33 | V |
|---------|----|---------|---|
- 2 Non intrinsically safe circuit FIELDBUS (terminals FIELDBUS 1 and 2), only for type 27*0*1*N*****
- | | | | |
|----------------------|----|------------|----|
| Voltage | Um | DC 33 | V |
| Current | Im | 380 | mA |
| Power | Pm | 5.32 | W |
| Internal inductance | L | negligible | |
| Internal capacitance | C | negligible | |
- for the connection of a FIELDBUS circuit in accordance with FNICO model
- 3 Intrinsically safe circuit FIELDBUS (terminals FIELDBUS 1 and 2), type of protection Ex ia IIC only for type 27*0*1*E***** and 27*0*1*G*****
- | | | | |
|--------------------------------|----|------------|----|
| Voltage | Ui | DC 33 | V |
| Current | Ii | 380 | mA |
| Power | Pi | 5.32 | W |
| Effective internal inductance | Li | negligible | |
| Effective internal capacitance | Ci | negligible | |
- for the connection of a FIELDBUS circuit in accordance with FISCO model
- 4 Intrinsically safe circuits (terminals 1 and 2 mA output 1 and terminals 5 and 6 mA output 2), type of protection Ex ia IIC only for type *7*0*1*D*****
- | | | | |
|--------------------------------|----|------------|----|
| Voltage | Ui | DC 30 | V |
| Current | Ii | 300 | mA |
| Power | Pi | 1 | W |
| Effective internal inductance | Li | negligible | |
| Effective internal capacitance | Ci | negligible | |
- 5 Intrinsically safe circuits (terminals 3 and 4 Frequency Output), type of protection Ex ia IIC only for type *7*0*1*D*****
- | | | | |
|--------------------------------|----|------------|----|
| Voltage | Ui | DC 30 | V |
| Current | Ii | 100 | mA |
| Power | Pi | 0.75 | W |
| Effective internal inductance | Li | negligible | |
| Effective internal capacitance | Ci | negligible | |



IECEX Certificate of Conformity



Certificate No.: IECEx BVS 04.0006X Issue 4
Annex
Page 2 of 3

6	Intrinsically safe power and signal circuits for type *700R1***** or *700B1***** or *750E1*****				
	Voltage	U _o	DC	17.22	V
	Current	I _o		0.484	A
	limited by a fuse with a nominal value of			0.16	A
	Power	P _o		2.05	W
	Type of protection Ex ib IIC				
	Max. external inductance	L _o		151	µH
	Max. external capacitance	C _o		333	nF
	Max. inductance/resistance ratio	L _o /R _o		17.06	µH/Ω
	Type of protection Ex ib IIB				
	Max. external inductance	L _o		607	µH
	Max. external capacitance	C _o		2.04	µF
	Max. inductance/resistance ratio	L _o /R _o		68.2	µH/Ω
7	Intrinsically safe power and signal circuits for type *7*0C1*****				
7.1	Drive circuit (pins 3 and 4)				
	Voltage	U _o	DC	10.5	V
	Current	I _o		2.45	A
	Power	P _o		2.54	W
	Internal resistance	R _i		4.32	Ω
	For group IIC				
	Max. external capacitance	C _o		2.41	µF
	Max. external inductance	L _o		5.9	µH
	Max. external inductance/resistance ratio	L _o /R _o		5.5	µH/Ω
	For group IIB				
	Max. external capacitance	C _o		16.8	µF
	Max. external inductance	L _o		24	µH
	Max. external inductance/resistance ratio	L _o /R _o		22	µH/Ω

The maximum external inductance L (sensor coil) can be calculated with the following term:

$$L = 2 \times E \times \left(\frac{R_i + R_o}{1.5 \times U_o} \right)^2$$

whereby E = 40 µJ for group IIC and E = 160 µJ for group IIB will be inserted.

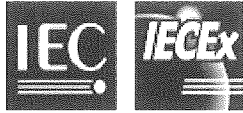


IECEX Certificate of Conformity



Certificate No.: **IECEX BVS 04.0006X Issue 4**
Annex
Page 3 of 3

7.2	Pick-off circuits (pins 5- 6 and 7-8)				
	Voltage	Uo	DC	17.3	V
	Current	Io		6.9	mA
	Power	Po		30	mW
	For group IIC				
	Max. external capacitance	Co		353	nF
	Max. external inductance	Lo		742	mH
	Max. external inductance/resistance ratio	Lo/Ro		1.19	mH/ Ω
	For group IIB				
	Max. external capacitance	Co		2.06	μ F
	Max. external inductance	Lo		2.97	H
	Max. external inductance/resistance ratio	Lo/Ro		4.75	mH/ Ω
7.3	Temperature circuit (pins 1, 2 and 9)				
	Voltage	Uo	DC	17.3	V
	Current	Io		26	mA
	Power	Po		112	mW
	For group IIC				
	Max. external capacitance	Co		353	nF
	Max. external inductance	Lo		52.6	mH
	Max. external inductance/resistance ratio	Lo/Ro		0.32	mH/ Ω
	For group IIB				
	Max. external capacitance	Co		2.06	μ F
	Max. external inductance	Lo		210	mH
	Max. external inductance/resistance ratio	Lo/Ro		1.26	mH/ Ω



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 04.0006X issue No.:5

Status: **Current**

Date of Issue: **2009-05-15** Page 1 of 4

Certificate history:
Issue No. 5 (2009-5-15)
Issue No. 4 (2008-1-10)
Issue No. 3 (2007-7-16)
Issue No. 2 (2007-2-5)

Applicant: **Micro Motion, Inc.**
7070 Winchester Circle
Boulder, Co. 80301
United States of America

Electrical Apparatus: **Transmitter type *7*0*******
Optional accessory:

Type of Protection: **Flameproof enclosures; Intrinsic safety; Increased safety; Fieldbus intrinsically safe concept (FISCO) and Fieldbus non-incendive concept (FNICO)**

Marking: **Ex d[ib] IIB+H2 T6 or
Ex de[ib] IIB+H2 T6 or
Ex d[ib] IIC T6 or
Ex de[ib] IIC T6 or
Ex d[ja/ib] IIC T6 or
Ex de[ja/ib] IIC T6 or
Ex d[ja/ib] IIB+H2 T6 or
Ex de[ja/ib] IIB+H2 T6
see description in Annex**

Approved for issue on behalf of the IECEx
Certification Body:

Dr. F. Eickhoff

Position:

Deputy Head of Certification Body

Signature:
(for printed version)

Date:

2009-05-15

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



IECEX Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

Date of Issue: 2009-05-15

Issue No.: 5

Page 2 of 4

Manufacturer: **Micro Motion, Inc.**
7070 Winchester Circle
Boulder, CO 80301
United States of America

Manufacturing location(s):

Micro Motion, Inc. 7070 Winchester Circle Boulder, CO 80301 United States of America	Micro Motion Inc. Ave. Miguel de Cervantes 111 Complejo Industrial Chihuahua Chihuahua 31109 Mexico	Emerson Process Management Co., Ltd 1277 Xin Jin Qiao Rd Jin Qiao Export Processing Zone Pudong Shanghai 201206 China	Emerson Process Management Flow Technologies Co., Ltd. 111, Xing Min South Road, Jiangning, Nanjing, Jiangsu Province 211100 China China	Emerson Process Management Flow BV Neonstraat 1 6718 WX Ede The Netherlands
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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 : 2000 Edition: 3.1	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-1 : 2001 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosures 'd'
IEC 60079-11 : 1999 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i'
IEC 60079-27 : 2005-04 Edition: 1.0	Electrical apparatus for explosive atmospheres- Part 27: Fieldbus intrinsically safe concept (FISCO) and Fieldbus non-incendive concept (FINCO)
IEC 60079-7 : 2001 Edition: 3	Electrical apparatus for explosive gas atmospheres - Part 7: Increased safety 'e'

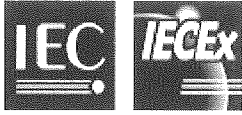
This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

IECEX ATR:
DE/BVS/ExTR06.0008/00 and DE/BVS/ExTR06.0008/01 and
DE/BVS/ExTR06.0008/02 and DE/BVS/ExTR06.0008/03 and
DE/BVS/ExTR06.0008/04 and DE/BVS/ExTR06.0008/05

File Reference:
A 20020549 and A 20040486 and
A 20060813 and A 20070194 and
A 20070793 and A 20090273



IECEx Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

Date of Issue: 2009-05-15

Issue No.: 5

Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The transmitter is, in combination with a sensor, used for measurement of mass flow and data transmission.

The electrical circuitry of the transmitters is mounted inside a metal enclosure type 1700/2700..*..*.. which is divided into three compartments.

In the compartment type of protection "Flameproof Enclosure" the Terminal Board, Power Supply Board, I.S. output Board (for type *700*1*D***** or non-I.S. output board (for type *700*1*A***** and type 2700*1*(B or C)***** or Fieldbus Board (only for type 2700*1*(E or G)***** and display board (for type *700*1(1 or 4)***** are mounted.

The compartment "Increased Safety" (type *700*1***E****) or "Flameproof Enclosure" (type *700*1***I****) is equipped with terminals for the connection of intrinsically safe circuits as well as non intrinsically safe circuits.

The enclosure is constructed with a terminal compartment for the connection of remotely operating intrinsically safe sensors (type *700R1*****).

Alternatively, the enclosure can be mounted directly to the sensor via a transition compartment for the incorporation of the signal processing device type 700 in accordance with IEC Ex BVS 04.0002 U (type *700I1*****). This type of mounting has to be certified separately.

The transmitter type *700C1***** is constructed with a terminal compartment for the incorporation of the signal processing device type 700 (IEC Ex BVS 04.0002 U) and a connection board. The transmitter type *700B1***** is to be used with a remotely mounted processor in accordance with IEC Ex BVS 04.0005.

A variation, type 750(D or E)1*(J or K)*****, is also available.

The transmitter type *700(R or B)1***(I or E)**** can be modified in that way that a special remote J-box can be used alternatively; That variation gets the denomination

Type *700(R or B)1***(I or E)**** ETO 16097.

This variation can be used in an ambient temperature range of -35 °C up to +60 °C.

CONDITIONS OF CERTIFICATION: YES as shown below:

Provision is made for threaded entries in the walls for the fitting of suitable and certified cable glands.

For the application of the transmitter in an ambient temperature of less than - 20 °C suitable cable and cable entries or conduit entries certified for this condition shall be used.

If certified conduit entries are used for the connection of the transmitter enclosure, the associated stopping boxes shall be installed immediately at the enclosure.



IECEX Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

Date of Issue: 2009-05-15

Issue No.: 5

Page 4 of 4

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

The manufacturing location Emerson Process Management Flow Technologies Co., Ltd., Nanjing, China, was added. The following variation of the transmitter is possible: type *700(R or B)1***(I or E)*** ETO 16097.



IECEX Certificate of Conformity



Certificate No.: IECEx BVS 04.0006X Issue 5
Annex
Page 1 of 4

Modified parameters

- 1 Non intrinsically safe signal circuits (terminals 1-6), only for types *700*1*A*****, *700*1*B*****, *700*1*C*****, *750*1*J*****, and *750*1*K*****
- | | | | |
|---------|----|---------|---|
| Voltage | Um | AC/DC33 | V |
|---------|----|---------|---|
- 2 Non intrinsically safe circuit FIELDBUS (terminals FIELDBUS 1 and 2), only for type 27*0*1*N*****
- | | | | |
|----------------------|----|------------|----|
| Voltage | Um | DC 33 | V |
| Current | Im | 380 | mA |
| Power | Pm | 5.32 | W |
| Internal inductance | L | negligible | |
| Internal capacitance | C | negligible | |
- for the connection of a FIELDBUS circuit in accordance with FNICO model
- 3 Intrinsically safe circuit FIELDBUS (terminals FIELDBUS 1 and 2), type of protection Ex ia IIC only for type 27*0*1*E***** and 27*0*1*G*****
- | | | | |
|--------------------------------|----|------------|----|
| Voltage | Ui | DC 33 | V |
| Current | Ii | 380 | mA |
| Power | Pi | 5.32 | W |
| Effective internal inductance | Li | negligible | |
| Effective internal capacitance | Ci | negligible | |
- for the connection of a FIELDBUS circuit in accordance with FISCO model
- 4 Intrinsically safe circuits (terminals 1 and 2 mA output 1 and terminals 5 and 6 mA output 2), type of protection Ex ia IIC only for type *7*0*1*D *****
- | | | | |
|--------------------------------|----|------------|----|
| Voltage | Ui | DC 30 | V |
| Current | Ii | 300 | mA |
| Power | Pi | 1 | W |
| Effective internal inductance | Li | negligible | |
| Effective internal capacitance | Ci | negligible | |
- 5 Intrinsically safe circuits (terminals 3 and 4 Frequency Output), type of protection Ex ia IIC only for type *7*0*1*D *****
- | | | | |
|--------------------------------|----|------------|----|
| Voltage | Ui | DC 30 | V |
| Current | Ii | 100 | mA |
| Power | Pi | 0.75 | W |
| Effective internal inductance | Li | negligible | |
| Effective internal capacitance | Ci | negligible | |



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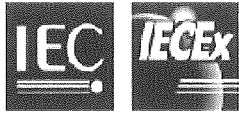
Certificate No.: IECEx BVS 04.0006X Issue 5
Annex
Page 2 of 4

6	Intrinsically safe power and signal circuits for type *700R1***** or *700B1***** or *750E1*****				
	Voltage	Uo	DC	17.22	V
	Current	Io		0.484	A
	limited by a fuse with a nominal value of			0.16	A
	Power	Po		2.05	W
	Type of protection Ex ib IIC				
	Max. external inductance	Lo		151	µH
	Max. external capacitance	Co		333	nF
	Max. inductance/resistance ratio	Lo/Ro		17.06	µH/Ω
	Type of protection Ex ib IIB				
	Max. external inductance	Lo		607	µH
	Max. external capacitance	Co		2.04	µF
	Max. inductance/resistance ratio	Lo/Ro		68.2	µH/Ω
7	Intrinsically safe power and signal circuits for type *7*0C1*****				
7.1	Drive circuit (pins 3 and 4)				
	Voltage	Uo	DC	10.5	V
	Current	Io		2.45	A
	Power	Po		2.54	W
	Internal resistance	Ri		4.32	Ω
	For group IIC				
	Max. external capacitance	Co		2.41	µF
	Max. external inductance	Lo		5.9	µH
	Max. external inductance/resistance ratio	Lo/Ro		5.5	µH/Ω
	For group IIB				
	Max. external capacitance	Co		16.8	µF
	Max. external inductance	Lo		24	µH
	Max. external inductance/resistance ratio	Lo/Ro		22	µH/Ω

The maximum external inductance L (sensor coil) can be calculated with the following term:

$$L = 2 \times E \times \left(\frac{Ri + Ro}{1.5 \times Uo} \right)^2$$

whereby E = 40 µJ for group IIC and E = 160 µJ for group IIB will be inserted.



IECEX Certificate of Conformity



Certificate No.: **IECEX BVS 04.0006X Issue 5**
Annex
Page 3 of 4

7.2	Pick-off circuits (pins 5- 6 and 7-8)				
	Voltage	Uo	DC	17.3	V
	Current	Io		6.9	mA
	Power	Po		30	mW
	For group IIC				
	Max. external capacitance	Co		353	nF
	Max. external inductance	Lo		742	mH
	Max. external inductance/resistance ratio	Lo/Ro		1.19	mH/Ω
	For group IIB				
	Max. external capacitance	Co		2.06	μF
	Max. external inductance	Lo		2.97	H
	Max. external inductance/resistance ratio	Lo/Ro		4.75	mH/Ω
7.3	Temperature circuit (pins 1, 2 and 9)				
	Voltage	Uo	DC	17.3	V
	Current	Io		26	mA
	Power	Po		112	mW
	For group IIC				
	Max. external capacitance	Co		353	nF
	Max. external inductance	Lo		52.6	mH
	Max. external inductance/resistance ratio	Lo/Ro		0.32	mH/Ω
	For group IIB				
	Max. external capacitance	Co		2.06	μF
	Max. external inductance	Lo		210	mH
	Max. external inductance/resistance ratio	Lo/Ro		1.26	mH/Ω
8	Type *700(R or B)1***(I or E)**** ETO 16097				
8.1	Mains circuit (terminals 9 - 10)				
	Voltage		AC/DC	18 - 240 V + 10 %	
	Max. voltage	Um	AC/DC	265	V
8.2	Intrinsically safe power and signal circuits for type *700R1***** or *700B1*****				
	Voltage	Uo	DC	17,22	V
	Current	Io		0,484	A
	Limited by a fuse with a nominal value of			0,16	A
	Power	Po		2,05	W
	Type of protection Ex ib IIC				
	Max. external inductance	Lo		151	μH
	Max. external capacitance	Co		333	nF
	Max. inductance/resistance ratio	Lo/Ro		17,06	μH/Ω
	Type of protection Ex ib IIB				
	Max. external inductance	Lo		607	μH
	Max. external capacitance	Co		2,04	μF
	Max. inductance/resistance ratio	Lo/Ro		68,2	μH/Ω
8.3	Ambient temperature range	Ta		-35 °C up to +60 °C	



IECEX Certificate of Conformity



Certificate No.: IECEx BVS 04.0006X Issue 5
Annex
Page 4 of 4

Marking

- 1 The name of the manufacturer or his trademark
Serial number
Certificate number
 $-35\text{ °C} \leq T_a \leq +60\text{ °C}$

type	marking
*700 ¹⁾ 1 ²⁾³⁾ * **** ETO 16097	Ex d[ib] IIB+H ₂ T6
*700 ¹⁾ 1 ²⁾³⁾ *E**** ETO 16097	Ex de[ib] IIB+H ₂ T6
*700 ¹⁾ 1 ⁴⁾³⁾ * **** ETO 16097	Ex d[ib] IIC T6
*700 ¹⁾ 1 ⁴⁾³⁾ *E**** ETO 16097	Ex de[ib] IIC T6
*700 ¹⁾ 1 ²⁾⁵⁾ * **** ETO 16097	Ex d[ia/ib] IIB+H ₂ T6
*700 ¹⁾ 1 ²⁾⁵⁾ *E**** ETO 16097	Ex de[ia/ib] IIB+H ₂ T6
*700 ¹⁾ 1 ⁴⁾⁵⁾ * **** ETO 16097	Ex d[ia/ib] IIC T6
*700 ¹⁾ 1 ⁴⁾⁵⁾ *E**** ETO 16097	Ex de[ia/ib] IIC T6

¹⁾ at this place the letter B or R may be inserted

²⁾ at this place the numerals 1 or 2 may be inserted

³⁾ at this place the letter A, B, C or N may be inserted

⁴⁾ at this place the numerals 3, 4 or 5 may be inserted

⁵⁾ at this place the letter D, E or G may be inserted



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 04.0006X issue No.:6

Status: Current

Date of Issue: 2009-09-28 Page 1 of 4

Certificate history:
Issue No. 6 (2009-9-28)
Issue No. 5 (2009-5-15)
Issue No. 4 (2008-1-10)
Issue No. 3 (2007-7-16)
Issue No. 2 (2007-2-5)

Applicant: **Micro Motion, Inc.**
7070 Winchester Circle
Boulder, Co. 80301
United States of America

Electrical Apparatus: **Transmitter type *7*0*******
Optional accessory:


Type of Protection: **Flameproof enclosures; Intrinsic safety; Increased safety; Fieldbus intrinsically safe concept (FISCO) and Fieldbus non-incendive concept (FNICO), Type of Protection "n" electrical apparatus**

Marking: **see description in Annex**

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

Position: Head of Certification Body

Signature:
(for printed version)



Date: 28.09.2009

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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



IECEX Certificate of Conformity

Certificate No.: IECEX BVS 04.0006X

Date of Issue: 2009-09-28

Issue No.: 6

Page 2 of 4

Manufacturer: **Micro Motion, Inc.**
7070 Winchester Circle
Boulder, CO 80301
United States of America

Manufacturing location(s):

Micro Motion, Inc.
7070 Winchester Circle
Boulder, CO 80301
United States of America

Micro Motion Inc.
Ave. Miguel de Cervantes
111
Complejo Industrial
Chihuahua
Chihuahua 31109
Mexico

**Emerson Process
Management Flow
Technologies Co., Ltd.**
111, Xing Min South Road,
Jiangning, Nanjing,
Jiangsu Province
211100 China
China

**Emerson Process
Management Flow BV**
Neonstraat 1
6718 WX Ede
The Netherlands

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 : 2000 Edition: 3.1	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-1 : 2001 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosures 'd'
IEC 60079-11 : 1999 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i'
IEC 60079-15 : 2005-03 Edition: 3	Electrical apparatus for explosive gas atmospheres Part 15: Construction, test and Marking of Type of Protection "n" electrical apparatus
IEC 60079-27 : 2005-04 Edition: 1.0	Electrical apparatus for explosive atmospheres- Part 27: Fieldbus intrinsically safe concept (FISCO) and Fieldbus non-incendive concept (FINCO)
IEC 60079-7 : 2001 Edition: 3	Electrical apparatus for explosive gas atmospheres - Part 7: Increased safety 'e'

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

IECEX ATR:
DE/BVS/ExTR06.0008/00 - DE/BVS/ExTR06.0008/06

File Reference:
A 20020549, A 20040486, A 20060813,
A 20070194, A 20070793, A 20090273
and A 20090692



IECEx Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

Date of Issue: 2009-09-28

Issue No.: 6

Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The transmitter is, in combination with a sensor, used for measurement of mass flow and data transmission. The electrical circuitry of the transmitters is mounted inside a metal enclosure type 1700/2700..*..*.. which is divided into three compartments.

In the compartment type of protection "Flameproof Enclosure" the Terminal Board, Power Supply Board, I.S. output Board (for type *700*1*D***** or non-I.S. output board (for type *700*1*A***** and type 2700*1*(B or C)***** or Fieldbus Board (only for type 2700*1*(E or G)***** and display board (for type *700*1(1 or 4)***** are mounted. The compartment "Increased Safety" (type *700*1**E****) or "Flameproof Enclosure" (type *700*1***I****) is equipped with terminals for the connection of intrinsically safe circuits as well as non intrinsically safe circuits.

The enclosure is constructed with a terminal compartment for the connection of remotely operating intrinsically safe sensors (type *700R1*****).

Alternatively, the enclosure can be mounted directly to the sensor via a transition compartment for the incorporation of the signal processing device type 700 in accordance with IEC Ex BVS 04.0002 U (type *700I1*****). This type of mounting has to be certified separately.

The transmitter type *700C1***** is constructed with a terminal compartment for the incorporation of the signal processing device type 700 (IEC Ex BVS 04.0002 U) and a connection board. The transmitter type *700B1***** is to be used with a remotely mounted processor in accordance with IEC Ex BVS 04.0005.

A variation, type 750(D or E)1*(J or K)*****, is also available.

The transmitter type *700(R or B)1***(I or E)**** can be modified in that way that a special remote J-box can be used alternatively; That variation gets the denomination

Type *700(R or B)1***(I or E)**** ETO 16097.

This variation can be used in an ambient temperature range of -35 °C up to +60 °C.

CONDITIONS OF CERTIFICATION: YES as shown below:

Provision is made for threaded entries in the walls for the fitting of suitable and certified cable glands.

For the application of the transmitter in an ambient temperature of less than - 20 °C suitable cable and cable entries or conduit entries certified for this condition shall be used.

If certified conduit entries are used for the connection of the transmitter enclosure, the associated stopping boxes shall be installed immediately at the enclosure.



IECEX Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

Date of Issue: 2009-09-28

Issue No.: 6

Page 4 of 4

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

This issue incorporates the new Output options 2, 3 and 4 for Housing with 3rd conduit opening. The 3rd conduit opening is used to install the SMART Wireless THUM Model 775 marked as Ex nA IIC T4 (IECEX BAS 09.0058) or marked as Ex ia IIC T4 (IECEX BAS 09.0050X). When installed with the Ex nA IIC T4 THUM Model 775, the 1700/2700 transmitter can only be used in Zone 2 and gets the denomination *7*0*1***3****. The THUM comes pre-installed from the factory. Furthermore an alternative Profibus PA board has been added.

This issue of the Certificate is also issued to remove manufacturing location Pudong, China, from the manufacturing locations due to a decision by the manufacturer to no longer produce products covered by this Certificate at this location, from September 2009. Products produced at this facility prior to September 2009 remain covered by this Certificate.



IECEX Certificate of Conformity



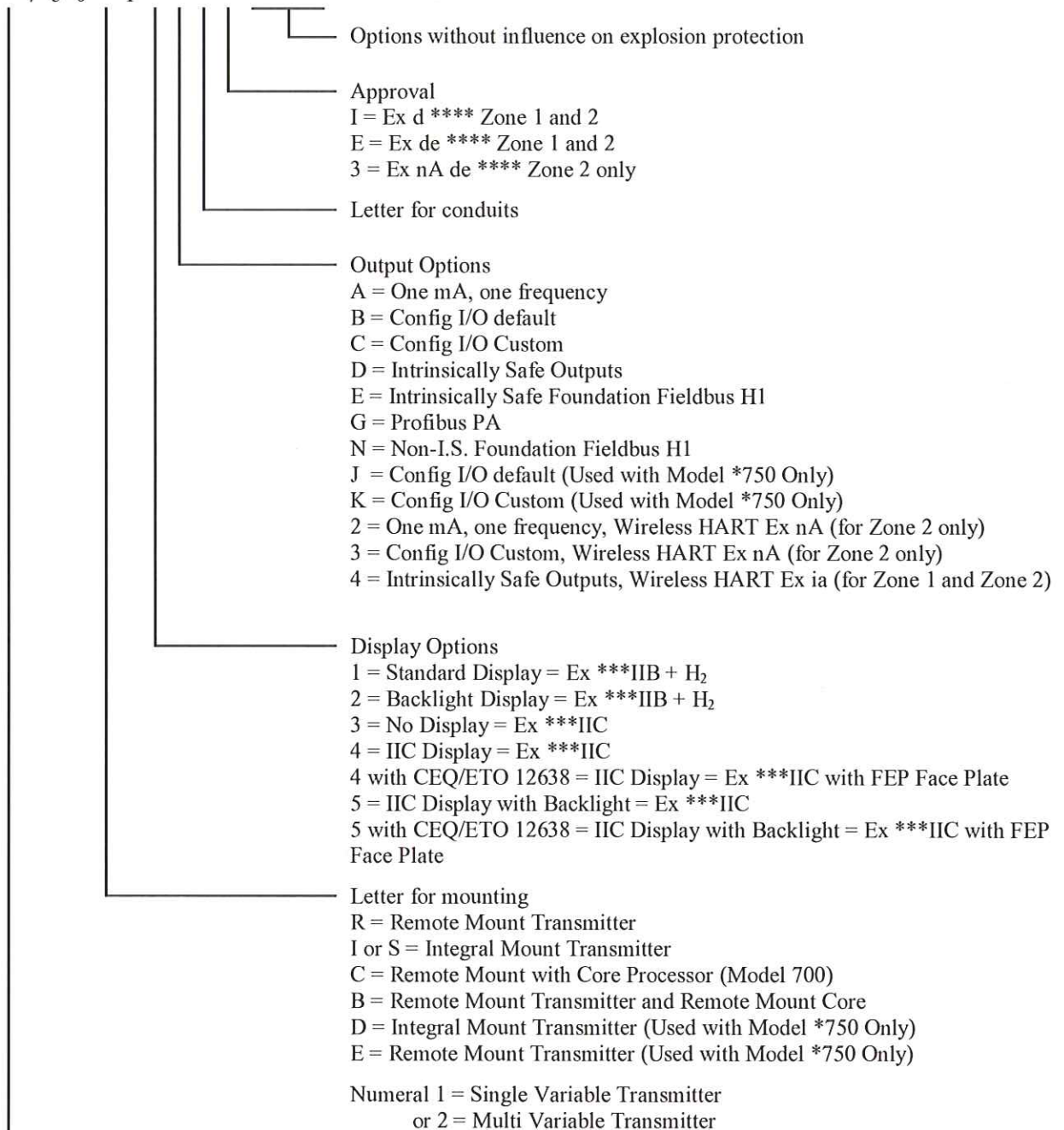
Certificate No.: **IECEX BVS 04.0006 X issue no. 6**
Annex
Page 1 of 5

Subject and Type

Transmitter type *7*0*****

Instead of the *** in the complete denomination letters and numerals will be inserted which characterize the following variations:

Type * 7 0 0 * 1 * * * * * * * * *
Type * 7 5 0 * 1 * * * * * * * * *





IECEX Certificate of Conformity



Certificate No.: IECEx BVS 04.0006 X issue no. 6
Annex
Page 2 of 5

Modified parameters

Type *7*0*1*(2, 3 or 4)*(E or 3)****.

1	Mains circuit (terminals 9 - 10) voltage max. voltage	Um	AC/DC AC/DC	18 - 240 V + 10 % 265	V V
2	Non intrinsically safe input/output circuits (terminals 1 - 6) only for type *700*1*(A, B, C, J, K, 2 or 3)***** voltage	Um	AC/DC	33	V
	Non intrinsically safe circuits FIELDBUS (terminals FIELDBUS 1 - 2) only for type *700*1*N***** voltage	Um	DC	33	V
	current	Im		380	mA
	power	Pm		5,32	W
	effective internal inductance	L		negligible	
	effective internal capacitance	C		negligible	
	for the connection of a FIELDBUS circuit in accordance with FNICO model.				
3	Intrinsically safe output circuits type of protection Ex ia IIC.				
3.1	Fieldbus circuit (terminals Fieldbus 1 and 2) only for type 27*0*1*E***** and type 27*0*1*G***** voltage	Ui	DC	33	V
	current	Ii		380	mA
	power	Pi		5,32	W
	effective internal inductance	Li		negligible	
	effective internal capacitance	Ci		negligible	
	for the connection of a FIELDBUS circuit in accordance with FISCO model.				
3.2	Intrinsically Safe Outputs (terminals 1 – 2, mA output 1 and terminals 5 – 6, mA output 2) only for type *7*0*1*D***** , values for each circuit: voltage	Ui	DC	30	V
	current	Ii		300	mA
	power	Pi		1	W
	effective internal inductance	Li		negligible	
	effective internal capacitance	Ci		negligible	
3.3	Intrinsically Safe Outputs (terminals 1 – 2, mA output 1) only for type *7*0*1* 4*****: voltage	Ui	DC	30	V
	current	Ii		200	mA
	power	Pi		1	W
	effective internal inductance	Li		negligible	
	effective internal capacitance	Ci		negligible	
	Intrinsically Safe Outputs (terminals 5 – 6, mA output 2) only for type *7*0*1* 4*****: voltage	Ui	DC	30	V
	current	Ii		300	mA
	power	Pi		1	W
	effective internal inductance	Li		negligible	
	effective internal capacitance	Ci		negligible	



IECEX Certificate of Conformity



Certificate No.: IECEx BVS 04.0006 X issue no. 6
Annex
Page 3 of 5

3.4	Intrinsically Safe Outputs (terminals 3 - 4 Frequency Output) only for type *7*0*1*(D or 4)***** voltage current power effective internal inductance effective internal capacitance	Ui Ii Pi Li Ci	DC	30 100 0,75 negligible negligible	V mA W
4	Intrinsically safe power and signal circuits for type *700R1***** or *700B1***** or *750E1***** Voltage Current limited by a fuse with a nominal value of Power Type of protection Ex ib IIC Max. external inductance Max. external capacitance Max. inductance/resistance ratio Type of protection Ex ib IIB Max. external inductance Max. external capacitance Max. inductance/resistance ratio	Uo Io Po Lo Co Lo/Ro Lo Co Lo/Ro	DC	17,22 0,484 0,16 2,05 151 333 17,06 607 2,04 68,2	V A A W µH nF µH/Ω µH µF µH/Ω
5	Ambient temperature range Models *7*0(B,R,E)1(1,2,3)(A,B,C,D,E,G,N,J,K)***** Models *7*0(B,R,E)1(4,5)(A,B,C,D,E,G,N,J,K)***** Models *7*0(B,R,E)1(1,2,3)(2,3,4)***** Models *7*0(B,R,E)1(1,2,3)(A,B,C,D,E,G,N,J,K)***** ETO16097 Models *7*0(B,R,E)1(1,2,3)(2,3,4)***** ETO16097 Models *7*0(B,R,E)1(4,5)(2,3,4)*****	Ta Ta Ta Ta Ta Ta		-40°C to +60°C -20°C to +60°C -40°C to +60°C -35°C to +60°C -35°C to +60°C -20°C to +60°C	
6	Intrinsically safe power and signal circuits for type *7*0(C, I, S or D)1*****				
6.1	Drive circuit; terminal number 3 and 4 voltage current power internal resistance for group IIC max. external capacitance max. external inductance max. external inductance/resistance ratio for group IIB max. external capacitance max. external inductance max. external inductance/resistance ratio	Uo Io Po Ri Co Lo Lo/Ro Co Lo Lo/Ro	DC	10,5 2,45 2,54 4,32 2,41 5,9 5,5 16,8 24 22	V A W Ω µF µH µH/Ω µF µH µH/Ω

Certificate No.: **IECEX BVS 04.0006 X issue no. 6**
Annex
Page 4 of 5

The maximum external inductance L (sensor coil) can be calculated with the following term:

$$L = 2 \times E \times \left(\frac{Ri + Ro}{1.5 \times Uo} \right)^2$$

whereby E = 40 µJ for group IIC and E = 160 µJ for group IIB will be inserted.

6.2	Pick-off circuits terminal numbers 5-6 and 7-8				
	voltage	Uo	DC	17,3	V
	current	Io		6,9	mA
	power	Po		30	mW
	for group IIC				
	max. external capacitance	Co		353	nF
	max. external inductance	Lo		742	mH
	max. external inductance/resistance ratio	Lo/Ro		1,19	mH/Ω
	for group IIB				
	max. external capacitance	Co		2,06	µF
	max. external inductance	Lo		2,97	H
	max. external inductance/resistance ratio	Lo/Ro		4,75	mH/Ω
6.3	Temperature circuit terminal number 1, 2 and 9				
	voltage	Uo	DC	17,3	V
	current	Io		26	mA
	power	Po		112	mW
	for group IIC				
	max. external capacitance	Co		353	nF
	max. external inductance	Lo		52,6	mH
	max. external inductance/resistance ratio	Lo/Ro		0,32	mH/Ω
	for group IIB				
	max. external capacitance	Co		2,06	µF
	max. external inductance	Lo		210	mH
	max. external inductance/resistance ratio	Lo/Ro		1,26	mH/Ω
6.4	Ambient temperature range				
	Models *7*0 (C,I,S,D)1(1,2,3)(A,B,C,D,E,G,N,J,K)*****	Ta		-40°C to +55°C	
	Models *7*0 (C,I,S,D)1(4,5)(A,B,C,D,E,G,N,J,K)*****	Ta		-20°C to +55°C	
	Models *7*0 (C,I,S,D)1(1,2,3)(2,3,4)*****	Ta		-40°C to +55°C	
	Models *7*0 (C,I,S,D)1(4,5)(2,3,4)*****	Ta		-20°C to +55°C	



IECEX Certificate of Conformity



Certificate No.: IECEx BVS 04.0006 X issue no. 6
Annex
Page 5 of 5

Marking

The name of the manufacturer or his trademark

Serial number

Certificate number

Models *7*0*1(1,2,3)*E****

Ta

-35°C or -40°C to +55°C or +60°C

Models *7*0*1(4,5)*E****

Ta

-20°C to +55°C or +60°C

type	marking
*7*0(B,R,E)1(1,2)(A,B,C,N,J,K)*I****	Ex d[ib] IIB+H2 T6
*7*0(B,R,E)1(1,2)(A,B,C,N,J, K)*E****	Ex de[ib] IIB+H2 T6
*7*0(B,R,E)1(3,4,5)(A,B,C,N,J,K)*I****	Ex d[ib] IIC T6
*7*0(B,R,E)1(3,4,5)(A,B,C,N,J,K)*E****	Ex de[ib] IIC T6
*7*0(B,R,E)1(1,2)(D,E,G)*I****	Ex d[ia/ib] IIB+H2 T6
*7*0(B,R,E)1(1,2)(D,E,G)*E****	Ex de[ia/ib] IIB+H2 T6
*7*0(B,R,E)1(3,4,5)(D,E,G)*I****	Ex d[ia/ib] IIC T6
*7*0(B,R,E)1(3,4,5)(D,E,G)*E****	Ex de[ia/ib] IIC T6
*7*0(C,I,S,D)1(1,2)(A,B,C,N,J,K)*I****	Ex d[ib] IIB+H2 T5
*7*0(C,I,S,D)1(1,2)(A,B,C,N,J,K)*E****	Ex de[ib] IIB+H2 T5
*7*0(C,I,S,D)1(3,4,5)(A,B,C,N,J,K)*I****	Ex d[ib] IIC T5
*7*0(C,I,S,D)1(3,4,5)(A,B,C,N,J,K)*E****	Ex de[ib] IIC T5
*7*0(C,I,S,D)1(1,2)(D,E,G)*I****	Ex d[ia/ib] IIB+H2 T5
*7*0(C,I,S,D)1(1,2)(D,E,G)*E****	Ex de[ia/ib] IIB+H2 T5
*7*0(C,I,S,D)1(3,4,5)(D,E,G)*I****	Ex d [ia/ib] IIC T5
*7*0(C,I,S,D)1(3,4,5)(D,E,G)*E****	Ex de [ia/ib] IIC T5
*7*0(B,R,E)1(1,2)(2,3)*3****	Ex nA d e [ib] IIB+H2 T4
*7*0(B,R,E)1(3,4,5)(2,3)*3****	Ex nA d e [ib] IIC T4
*7*0(C,I,S,D)1(1,2)(2,3)*3****	Ex nA d e [ib] IIB+H2 T4
*7*0(C,I,S,D)1(3,4,5)(2,3)*3****	Ex nA d e [ib] IIC T4
*7*0(B,R,E)1(1,2)4*E****	Ex d e [ia/ib] IIB+H2 T4
*7*0(B,R,E)1(3,4,5)4*E****	Ex d e [ia/ib] IIC T4
*7*0(C,I,S,D)1(1,2)4*E****	Ex d e [ia/ib] IIB+H2 T4
*7*0(C,I,S,D)1(3,4,5)4*E****	Ex d e [ia/ib] IIC T4

5 min delay time after switch off

DEKRA EXAM GmbH · Postfach 10 27 48 · 44727 Bochum

Micro Motion, Inc.
7070 Winchester Circle
Boulder, Co.
USA

DEKRA EXAM GmbH
Certification Body
Dinnendahlstraße 9
44809 Bochum, Germany
Telefon +49.234.3696-105
Telefax +49.234.3696-110

Contact	Dipl.-Ing. Günther Schumann
Phone	+49.234.3696-358
Fax	+49.234.3696-300
E-Mail	guenther.schumann@dekra.com
Date	30.08.2010

Our reference:	BVS-Schu/Ar	A 20100604
Your sign:	H. van Holland	
Your reference:	01.06.2010	

Dear Sir or Madame,

We added the Revision Report as of 2010-08-30 to the Test and Assessment Report DE/BVS/04/2023.

We confirm, that the Certificate

IECEX BVS 04.0006X as of 2004-04-02, last modification as of 2009-09-28

must not be modified and keeps still valid unchanged.

Yours sincerely
DEKRA EXAM GmbH



Hans-Christian Simanski



Dr. Franz Eickhoff

Enclosure



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 04.0006X issue No.:7

Status: **Current**

Date of Issue: 2012-09-13 Page 1 of 4

Certificate history:

Issue No. 7 (2012-9-13)
Issue No. 6 (2009-9-28)
Issue No. 5 (2009-5-15)
Issue No. 4 (2008-1-10)
Issue No. 3 (2007-7-16)
Issue No. 2 (2007-2-5)

Applicant: **Micro Motion, Inc.**
7070 Winchester Circle
Boulder, Co. 80301
United States of America

Electrical Apparatus: **Transmitter type *7*0*******
Optional accessory:


Type of Protection: **protection by flameproof enclosures "d", protection by intrinsic safety "i", protection by type of protection "n", Equipment with equipment protection level (EPL) Ga, protection by increased safety "e"**

Marking: see description in Annex

Approved for issue on behalf of the IECEx Certification Body: Dr. Franz Eickhoff

Position: Deputy Head of Certification Body

Signature:
(for printed version)


2012-09-13

Date:

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](http://www.iecex.com).

Certificate issued by:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

 **DEKRA**
DEKRA EXAM GmbH



IECEX Certificate of Conformity

Certificate No.: IECEX BVS 04.0006X

Date of Issue: 2012-09-13

Issue No.: 7

Page 2 of 4

Manufacturer: **Micro Motion, Inc.**
7070 Winchester Circle
Boulder, CO 80301
United States of America

Manufacturing location(s):

Micro Motion, Inc.
7070 Winchester Circle
Boulder, CO 80301
United States of America

Micro Motion Inc.
Ave. Miguel de Cervantes
111
Complejo Industrial
Chihuahua
Chihuahua 31109
Mexico

**Emerson Process
Management Flow BV**
Neonstraat 1
6718 WX Ede
The Netherlands

**Emerson Process
Management Flow
Technologies Co., Ltd.**
111, Xing Min South Road,
Jiangning, Nanjing,
Jiangsu Province
211100 China
China

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 : 2011-06 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-15 : 2010 Edition: 4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 60079-26 : 2006 Edition: 2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga
IEC 60079-7 : 2006-07 Edition: 4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*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:

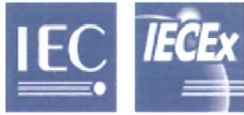
[DE/BVS/ExTR06.0008/07](#)

Quality Assessment Report:

[NO/DNV/QAR07.0002/02](#)
[NO/DNV/QAR08.0005/03](#)

[NO/DNV/QAR07.0003/02](#)

[NO/DNV/QAR07.0008/02](#)



IECEX Certificate of Conformity

Certificate No.: IECEX BVS 04.0006X

Date of Issue: 2012-09-13

Issue No.: 7

Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Description:

see Annex

Marking:

see Annex

Modified parameters:

see Annex

CONDITIONS OF CERTIFICATION: YES as shown below:

- 1 For the application of the transmitter suitable cable entries or conduit entries certified for this condition shall be used. For the application of the transmitter in an ambient temperature of less than - 20 °C suitable cable and cable entries or conduit entries certified for this condition shall be used.
If certified conduit entries are used for the connection of the transmitter enclosure, the associated stopping boxes shall be installed immediately at the enclosure.
- 2 Addition for version 7*0(F,M,P)1*****:
Enclosure entries can be used for double compression Ex-d IIC glands (such as but not limited to Hawke 501/453) intended for use with effectively filled and circular armored or braided cable; volume of the Ex-d enclosure is less than 2 liters.
- 3 Addition for version *7*0*1(4 or 5) ** (E or I) **** CEQ/ETO 12638 only:
Using a dry cloth to clean the display cover can cause static discharge, which could result in an explosion in an explosive atmosphere.
To prevent an explosion, use a clean damp cloth to clean the display cover in an explosive atmosphere.
- 4 The window cover forms one unit and cannot be taken apart without destroying the cover parts. If a cover is damaged it must be replaced by a new cover.
- 5 Addition for version *7*0*1 * (2 or 3) ** 3 **** only:
These devices can only be installed in Zone 2.
- 6 For wiring instructions of the SMART Wireless THUM Model 775, see Installation drawings IECEX-D-IS EB-20015909 and EB-20015910.



IECEX Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

Date of Issue: 2012-09-13

Issue No.: 7

Page 4 of 4

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

This issue of the CoC incorporates the new mounting options F, M and P for a stainless steel housing with 3 conduit openings. Mounting option E has been changed.
Furthermore a new Profibus Hornet board has been added.

New variations are available:

Type *7*0(F,M,P)1***** (stainless steel enclosure).

Alternative versions are possible:

type *7*0(B,E,R,C,I,D) 1(4,5)***** CIC A1 with a modified window cover

type *7*0*18(A,2)***** with a display optimized for Chinese-language and with alternative Analog board.



IECEX Certificate of Conformity



Certificate No.: IECEx BVS 04.0006 X issue no. 7
Annex
Page 1 of 6

Description

Transmitter type *700*1***** and *750*1*****

Instead of the *** in the complete denomination letters and numerals will be inserted which characterize the following variations:

Type * 7 0 0 * 1 * * * * * * * * * *
Type * 7 5 0 * 1 * * * * * * * * * *

- Options without influence on explosion protection
- Approval
 - I = Ex d **** Zone 1 and 2
 - E = Ex de **** Zone 1 and 2
 - 3 = Ex nA de **** Zone 2 only
- Letter for conduits
- Output Options
 - A = One mA, one frequency
 - B = Config I/O default
 - C = Config I/O Custom
 - D = Intrinsically Safe Outputs
 - E = Intrinsically Safe Foundation Fieldbus H1
 - G = Profibus PA
 - N = Non-I.S. Foundation Fieldbus H1
 - J = Config I/O default (Used with Model *750 Only)
 - K = Config I/O Custom (Used with Model *750 Only)
 - 2 = One mA, one frequency, Wireless HART Ex nA (for Zone 2 only)
 - 3 = Config I/O Custom, Wireless HART Ex nA (for Zone 2 only)
 - 4 = Intrinsically Safe Outputs, Wireless HART Ex ia (for Zone 1 and Zone 2)
- Display Options
 - 1 = Standard Display = Ex ***IIB + H₂
 - 2 = Backlight Display = Ex ***IIB + H₂
 - 3 = No Display = Ex ***IIC
 - 4 = IIC Display = Ex ***IIC
 - 4 with CEQ/ETO 12638 = IIC Display = Ex ***IIC with FEP Face Plate
 - 5 = IIC Display with Backlight = Ex ***IIC
 - 5 with CEQ/ETO 12638 = IIC Display with Backlight = Ex ***IIC with FEP Face Plate
 - 8 = Display optimized for Chinese-language support Ex***IIB +H₂
- Letter for mounting
 - R = Remote Mount Transmitter with Aluminium Housing
 - I or S = Integral Mount Transmitter
 - C = Remote Mount with Core Processor (Model 700) with Aluminium Housing
 - B = Remote Mount Alu Transmitter with remote Core Processor (Model 700)
 - D = Integral Mount Transmitter (Used with Model *750 Only)
 - E = Remote Mount Alu Transmitter with remote Core Processor (Model 800)
 - F = Remote Mount St. St Transmitter with remote Core Processor (Model 800)
 - M = Remote Mount Transmitter with Stainless Steel Housing
 - P = Remote Mount with Core Processor (Model 700) with Stainless Steel Housing
- Numeral 1 = Single Variable Transmitter
or 2 = Multi Variable Transmitter



IECEX Certificate of Conformity



Certificate No.: IECEx BVS 04.0006 X issue no. 7
Annex
Page 2 of 6

Modified parameters

1	Mains circuit (terminals 9 - 10) voltage max. voltage	Um	AC/DC AC/DC	18 - 240 V + 10 % 265	V V
2	Non intrinsically safe input/output circuits (terminals 1 - 6) only for type *700*1*(A,B,C,J,K,2,3)***** voltage	Um	AC/DC	33	V
	Non intrinsically safe circuits FIELDBUS (terminals FIELDBUS 1 - 2) only for type *700*1*N***** voltage	Um	DC	33	V
	current	Im		380	mA
	power	Pm		5,32	W
	effective internal inductance	L		negligible	
	effective internal capacitance	C		negligible	
3	Intrinsically safe output circuits type of protection Ex ia IIC.				
3.1	Fieldbus circuit (terminals Fieldbus 1 and 2) only for type 27*0*1*E***** and type 27*0*1*G***** voltage current power effective internal inductance effective internal capacitance for the connection of a FIELDBUS circuit in accordance with FISCO model (Annex G of IEC 60079-11).	Ui Ii Pi Li Ci	DC	33 380 5,32 negligible negligible	V mA W
3.2	Intrinsically Safe Outputs (terminals 1 – 2, mA output 1 and terminals 5 – 6, mA output 2) only for type *7*0*1*D***** , values for each circuit: voltage current power effective internal inductance effective internal capacitance	Ui Ii Pi Li Ci	DC	30 300 1 negligible negligible	V mA W
3.3	Intrinsically Safe Outputs (terminals 1 – 2, mA output 1) only for type *7*0*1* 4*****: voltage current power effective internal inductance effective internal capacitance	Ui Ii Pi Li Ci	DC	30 200 1 negligible negligible	V mA W
	Intrinsically Safe Outputs (terminals 5 – 6, mA output 2) only for type *7*0*1* 4*****: voltage current power effective internal inductance effective internal capacitance	Ui Ii Pi Li Ci	DC	30 300 1 negligible negligible	V mA W



IECEX Certificate of Conformity



Certificate No.: IECEx BVS 04.0006 X issue no. 7
Annex
Page 3 of 6

3.4	Intrinsically Safe Outputs (terminals 3 - 4 Frequency Output) only for type		*7*0*1*(D,4)*****		
	voltage	U _i	DC	30	V
	current	I _i		100	mA
	power	P _i		0,75	W
	effective internal inductance	L _i		negligible	
	effective internal capacitance	C _i		negligible	
4	Intrinsically safe power and signal circuits for type		*700(R,B,E,F,M)1*****		
	Voltage	U _o	DC	17,22	V
	Current	I _o		0,484	A
	limited by a fuse with a nominal value of			0,16	A
	Power	P _o		2,05	W
	Type of protection Ex ib IIC				
	Max. external inductance	L _o		151	μH
	Max. external capacitance	C _o		333	nF
	Max. inductance/resistance ratio	L _o /R _o		17,06	μH/Ω
	Type of protection Ex ib IIB				
	Max. external inductance	L _o		607	μH
	Max. external capacitance	C _o		2,04	μF
	Max. inductance/resistance ratio	L _o /R _o		68,2	μH/Ω
5	Ambient temperature range		T _a		
	Models *7*0(B,R,E,F,M)1(1,2,3)(A,B,C,D,E,G,N,J,K,2,3,4)*****		T _a	-40°C to +60°C	
	Models *7*0(B,R,E)1(4,5)(A,B,C,D,E,G,N,J,K,2,3,4)*****		T _a	-20°C to +60°C	
	Models *7*0(B, R, E)1(4, 5)(A,B,C,D,E,G,N,J,K,2,3,4)*****	CIC A1	T _a	-40°C to +60°C	
	Models *7*0(F,M)1(4,5)(A,B,C,D,E,G,N,J,K,2,3,4)*****		T _a	-40°C to +60°C	
	Models *7*0(B,R)1(1,2,3)(A,B,C,D,E,G,N,J,K,2,3,4)*****	ETO16097	T _a	-35°C to +60°C	
6	Intrinsically safe power and signal circuits for type		*7*0(C,I,S,D,P)1*****		
6.1	Drive circuit; terminal number 3 and 4				
	voltage	U _o	DC	10,5	V
	current	I _o		2,45	A
	power	P _o		2,54	W
	internal resistance	R _i		4,32	Ω
	for group IIC				
	max. external capacitance	C _o		2,41	μF
	max. external inductance	L _o		5,9	μH
	max. external inductance/resistance ratio	L _o /R _o		5,5	μH/Ω
	for group IIB				
	max. external capacitance	C _o		16,8	μF
	max. external inductance	L _o		24	μH
	max. external inductance/resistance ratio	L _o /R _o		22	μH/Ω



IECEX Certificate of Conformity



Certificate No.: IECEx BVS 04.0006 X issue no. 7
Annex
Page 4 of 6

The maximum external inductance L (sensor coil) can be calculated with the following term:

$$L = 2 \times E \times \left(\frac{Ri + Ro}{1.5 \times Uo} \right)^2$$

whereby E = 40 µJ for group IIC and E = 160 µJ for group IIB will be inserted.

6.2	Pick-off circuits terminal numbers 5-6 and 7-8				
	voltage	Uo	DC	17,3	V
	current	Io		6,9	mA
	power	Po		30	mW
	for group IIC				
	max. external capacitance	Co		353	nF
	max. external inductance	Lo		742	mH
	max. external inductance/resistance ratio	Lo/Ro		1,19	mH/Ω
	for group IIB				
	max. external capacitance	Co		2,06	µF
	max. external inductance	Lo		2,97	H
	max. external inductance/resistance ratio	Lo/Ro		4,75	mH/Ω
6.3	Temperature circuit terminal number 1, 2 and 9				
	voltage	Uo	DC	17,3	V
	current	Io		26	mA
	power	Po		112	mW
	for group IIC				
	max. external capacitance	Co		353	nF
	max. external inductance	Lo		52,6	mH
	max. external inductance/resistance ratio	Lo/Ro		0,32	mH/Ω
	for group IIB				
	max. external capacitance	Co		2,06	µF
	max. external inductance	Lo		210	mH
	max. external inductance/resistance ratio	Lo/Ro		1,26	mH/Ω
6.4	Ambient temperature range				
	Models *7*0 (C,I,S,D,P)1(1,2,3)(A,B,C,D,E,G,N,J,K,2,3,4)*****	Ta		-40°C to +55°C	
	Models *7*0 (C,I,S,D)1(4,5)(A,B,C,D,E,G,N,J,K,2,3,4)*****	Ta		-20°C to +55°C	
	Models *7*0 (C, I, S, D) 1(4, 5) (A,B,C,D,E,G,N,J,K,2,3,4)***** CIC A1	Ta		-40°C to +55°C	
	Models *7*0 P 1(4, 5) (A,B,C,D,E,G,N,J,K,2,3,4)*****	Ta		-40°C to +55°C	



IECEx Certificate of Conformity



Certificate No.: IECEx BVS 04.0006 X issue no. 7
Annex
Page 5 of 6

Marking

- The name of the manufacturer or his trademark
 Serial number
 Certificate number
 Type *7*0(B,R,E,F,M)1(1,2,3)(A,B,C,D,E,G,N,J,K,2,3,4)***** Ta -40°C to +60°C
 Type *7*0(B,R,E)1(4,5)(A,B,C,D,E,G,N,J,K,2,3,4)***** Ta -20°C to +60°C
 Type *7*0(B,R,E)1(4,5)(A,B,C,D,E,G,N,J,K,2,3,4)***** CIC A1 Ta -40°C to +60°C
 Type *7*0(F,M)1(4,5)(A,B,C,D,E,G,N,J,K,2,3,4)***** Ta -40°C to +60°C
 Type *7*0(B,R)1(1,2,3)(A,B,C,D,E,G,N,J,K,2,3,4)***** ETO16097 Ta -35°C to +60°C
 Type *7*0(C,I,S,D,P)1(1,2,3) (A,B,C,D,E,G,N,J,K,2,3,4)***** Ta -40°C to +55°C
 Type *7*0(C,I,S,D)1(4,5) (A,B,C,D,E,G,N,J,K,2,3,4)***** Ta -20°C to +55°C
 Type *7*0(C,I,S,D)1(4,5) (A,B,C,D,E,G,N,J,K,2,3,4)***** CIC A1 Ta -40°C to +55°C
 Type *7*0P1(4,5) (A,B,C,D,E,G,N,J,K,2,3,4)***** Ta -40°C to +55°C

type	marking
*7*0(B,R,E,F,M)1(1,2)(A,B,C,N,J,K)*I****	Ex d [ib] IIB+H ₂ T6 Gb
*7*0(B,R,E)1(1,2)(A,B,C,N,J,K)*E****	Ex de [ib] IIB+H ₂ T6 Gb
*7*0(B,R,E,F,M)1(3,4,5)(A,B,C,N,J,K)*I****	Ex d [ib] IIC T6 Gb
*7*0(B,R,E)1(3,4,5)(A,B,C,N,J,K)*I**** with or w/o CIC A1	Ex d [ib] IIC T6 Gb
*7*0(B,R,E)1(3,4,5)(A,B,C,N,J,K)*E**** with or w/o CIC A1	Ex de [ib] IIC T6 Gb
*7*0(B,R,E,F,M)1(1,2)(D,E,G)*I****	Ex d [ia Ga] [ib] IIB+H ₂ T6 Gb
*7*0(B,R,E)1(1,2)(D,E,G)*E****	Ex de [ia Ga] [ib] IIB+H ₂ T6 Gb
*7*0(B,R,E,F,M)1(3,4,5)(D,E,G)*I****	Ex d [ia Ga] [ib] IIC T6 Gb
*7*0(B,R,E)1(3,4,5)(D,E,G)*I**** with or w/o CIC A1	Ex d [ia Ga] [ib] IIC T6 Gb
*7*0(B,R,E)1(3,4,5)(D,E,G)*E**** with or w/o CIC A1	Ex de [ia Ga] [ib] IIC T6 Gb
*7*0(C,I,S,D,P)1(1,2)(A,B,C,N,J,K)*I****	Ex d [ib] IIB+H ₂ T5 Gb
*7*0(C,I,S,D)1(1,2)(A,B,C,N,J,K)*E****	Ex de [ib] IIB+H ₂ T5 Gb
*7*0(C,I,S,D,P)1(3,4,5)(A,B,C,N,J,K)*I****	Ex d [ib] IIC T5 Gb
*7*0(C,I,S,D)1(3,4,5)(A,B,C,N,J,K)*I**** with or w/o CIC A1	Ex d [ib] IIC T5 Gb
*7*0(C,I,S,D)1(3,4,5)(A,B,C,N,J,K)*E**** with or w/o CIC A1	Ex de [ib] IIC T5 Gb
*7*0(C,I,S,P)1(1,2)(D,E,G)*I****	Ex d [ia Ga] [ib] IIB+H ₂ T5 Gb
*7*0(C,I,S,D)1(1,2)(D,E,G)*E****	Ex de [ia Ga] [ib] IIB+H ₂ T5 Gb
*7*0(C,I,S,D,P)1(3,4,5)(D,E,G)*I****	Ex d [ia Ga] [ib] IIC T5 Gb
*7*0(C,I,S,D)1(3,4,5)(D,E,G)*I**** with or w/o CIC A1	Ex d [ia Ga] [ib] IIC T5 Gb
*7*0(C,I,S,D)1(3,4,5)(D,E,G)*E**** with or w/o CIC A1	Ex de [ia Ga] [ib] IIC T5 Gb



IECEX Certificate of Conformity



Certificate No.: **IECEX BVS 04.0006 X issue no. 7**
Annex
Page 6 of 6

type	marking
*7*0(B,R,E)1(1, 2)(2,3)*3****	Ex nA de [ib Gb] IIB+H ₂ T4 Gc
*7*0(B,R,E)1(3,4,5)(2,3)*3****	Ex nA de [ib Gb] IIC T4 Gc
*7*0(C,I,S,D)1(1,2)(2,3)*3****	Ex nA de [ib Gb] IIB+H ₂ T4 Gc
*7*0(C,I,S,D)1(3,4,5)(2,3)*3**** with or w/o CIC A1	Ex nA de [ib Gb] IIC T4 Gc
*7*0(B,R,E)1(1,2) 4*E****	Ex de [ia Ga] [ib] IIB+H ₂ T4 Gb
*7*0(B,R,E)1(3,4,5) 4*E**** with or w/o CIC A1	Ex de [ia Ga] [ib] IIC T4 Gb
*7*0(C,I,S,D)1(1,2) 4*E****	Ex de [ia Ga] [ib] IIB+H ₂ T4 Gb
*7*0(C,I,S,D)1(3,4,5) 4*E**** with or w/o CIC A1	Ex de [ia Ga] [ib] IIC T4 Gb

5 min delay time after switch off

DEKRA EXAM GmbH · Postfach 10 27 48 · 44727 Bochum

Micro Motion, Inc.
7070 Winchester Circle
Boulder, Co.
USA

DEKRA EXAM GmbH
Certification Body
Dinnendahlstraße 9
44809 Bochum, Germany
Telefon +49.234.3696-105
Telefax +49.234.3696-110

Contact	Dipl.-Ing. Günther Schumann
Phone	+49.234.3696-358
Fax	+49.234.3696-301
E-Mail	guenther.schumann@dekra.com
Date	13.12.2012

Our reference:	A 20121178
Your sign:	H. van Holland
Your reference:	18.09.2012

Dear Sir or Madame,

we added the Revision Report as of 13.12.2012 to the Test and Assessment Report DE/BVS/04/2023 (DE/BVS/ExTR06.0008).

We confirm, that the Certificate

IECEX BVS 04.0006X as of 02.04.2004, last modification as of 13.09.2012

is still valid.

Yours sincerely
DEKRA EXAM GmbH



Dr. Franz Eickhoff

Dr. Michael Wittler

Enclosure

DEKRA EXAM GmbH
Dinnendahlstr. 9
44809 Bochum
Germany
www.dekra-exam.eu

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Bank details:
Commerzbank AG Stuttgart
Bank code 600 800 00, Account No. 9 066 135 00
Swiftcode: DRES DE FF 600
IBAN-No.: DE81 6008 0000 0906 6135 00

Managing Director:
Dipl.-Ing. Jochen Titze



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 04.0006X issue No.:8

Status: Current

Date of Issue: 2013-04-19 Page 1 of 4

Certificate history:
Issue No. 8 (2013-4-19)
Issue No. 7 (2012-9-13)
Issue No. 6 (2009-9-28)
Issue No. 5 (2009-5-15)
Issue No. 4 (2008-1-10)
Issue No. 3 (2007-7-16)
Issue No. 2 (2007-2-5)

Applicant: **Micro Motion, Inc.**
7070 Winchester Circle
Boulder, Co. 80301
United States of America

Electrical Apparatus: Transmitter type *7*0*****
Optional accessory:

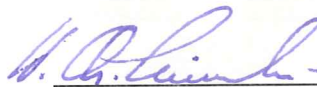
Type of Protection: Equipment protection by flameproof enclosures "d", Equipment protection by intrinsic safety "i", Equipment protection by type of protection "n", Equipment with equipment protection level (EPL) Ga, Equipment protection by increased safety "e"

Marking: See description in Annex

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

Position: Head of Certification Body

Signature:
(for printed version)



19/4/2013

Date:

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](http://www.iecex.com).

Certificate issued by:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

 **DEKRA**
DEKRA EXAM GmbH



IECEX Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

Date of Issue: 2013-04-19

Issue No.: 8

Page 2 of 4

Manufacturer: **Micro Motion, Inc.**
7070 Winchester Circle
Boulder, CO 80301
United States of America

Additional Manufacturing location(s):

Micro Motion, Inc.
7070 Winchester Circle
Boulder, CO 80301
United States of America

Micro Motion Inc.
Ave. Miguel de Cervantes
111
Complejo Industrial
Chihuahua
Chihuahua 31109
Mexico

**Emerson Process
Management Flow BV**
Neonstraat 1
6718 WX Ede
The Netherlands

**Emerson Process
Management Flow
Technologies Co., Ltd.**
111, Xing Min South Road,
Jiangning, Nanjing,
Jiangsu Province
211100 China
China

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"
IEC 60079-15 : 2010 Edition: 4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
IEC 60079-26 : 2006 Edition: 2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga
IEC 60079-7 : 2006-07 Edition: 4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*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/ExTR06.0008/08](#)

Quality Assessment Report:

[NO/DNV/QAR07.0002/03](#)
[NO/DNV/QAR08.0005/03](#)

[NO/DNV/QAR07.0003/03](#)

[NO/DNV/QAR07.0008/03](#)



IECEX Certificate of Conformity

Certificate No.: IECEX BVS 04.0006X

Date of Issue: 2013-04-19

Issue No.: 8

Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

General product information:

See Annex

Marking:

See Annex

Modified parameters:

See Annex

CONDITIONS OF CERTIFICATION: YES as shown below:

1 For the application of the transmitter suitable cable entries or conduit entries certified for this condition shall be used.

For the application of the transmitter in an ambient temperature of less than - 20 °C suitable cable and cable entries or conduit entries certified for this condition shall be used.

If certified conduit entries are used for the connection of the transmitter enclosure, the associated stopping boxes shall be installed immediately at the enclosure.

2 Addition for version 7*0(F,M,P)1*****:

Enclosure entries can be used for double compression Ex-d IIC glands (such as but not limited to Hawke 501/453) intended for use with effectively filled and circular armored or braided cable; volume of the Ex-d enclosure is less than 2 liters.

3 Addition for version *7*0*1(4 or 5) ** (E or I) **** CEQ/ETO 12638 only:

Using a dry cloth to clean the display cover can cause static discharge, which could result in an explosion in an explosive atmosphere.

To prevent an explosion, use a clean damp cloth to clean the display cover in an explosive atmosphere.

4 The window cover forms one unit and cannot be taken apart without destroying the cover parts. If a cover is damaged it must be replaced by a new cover.

5 Addition for version *7*0*1 * (2 or 3) ** 3 **** only:

These devices can only be installed in Zone 2.

6 For wiring instructions of the SMART Wireless THUM Model 775, see Installation drawings IECEX-D-IS EB-20015909 and EB-20015910.



IECEX Certificate of Conformity

Certificate No.: IECEx BVS 04.0006X

Date of Issue: 2013-04-19

Issue No.: 8

Page 4 of 4

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

This issue of the CoC incorporates the new mounting option H: type *7*0H1***** for use with a Density Meter and corrections in table marking.



IECEX Certificate of Conformity

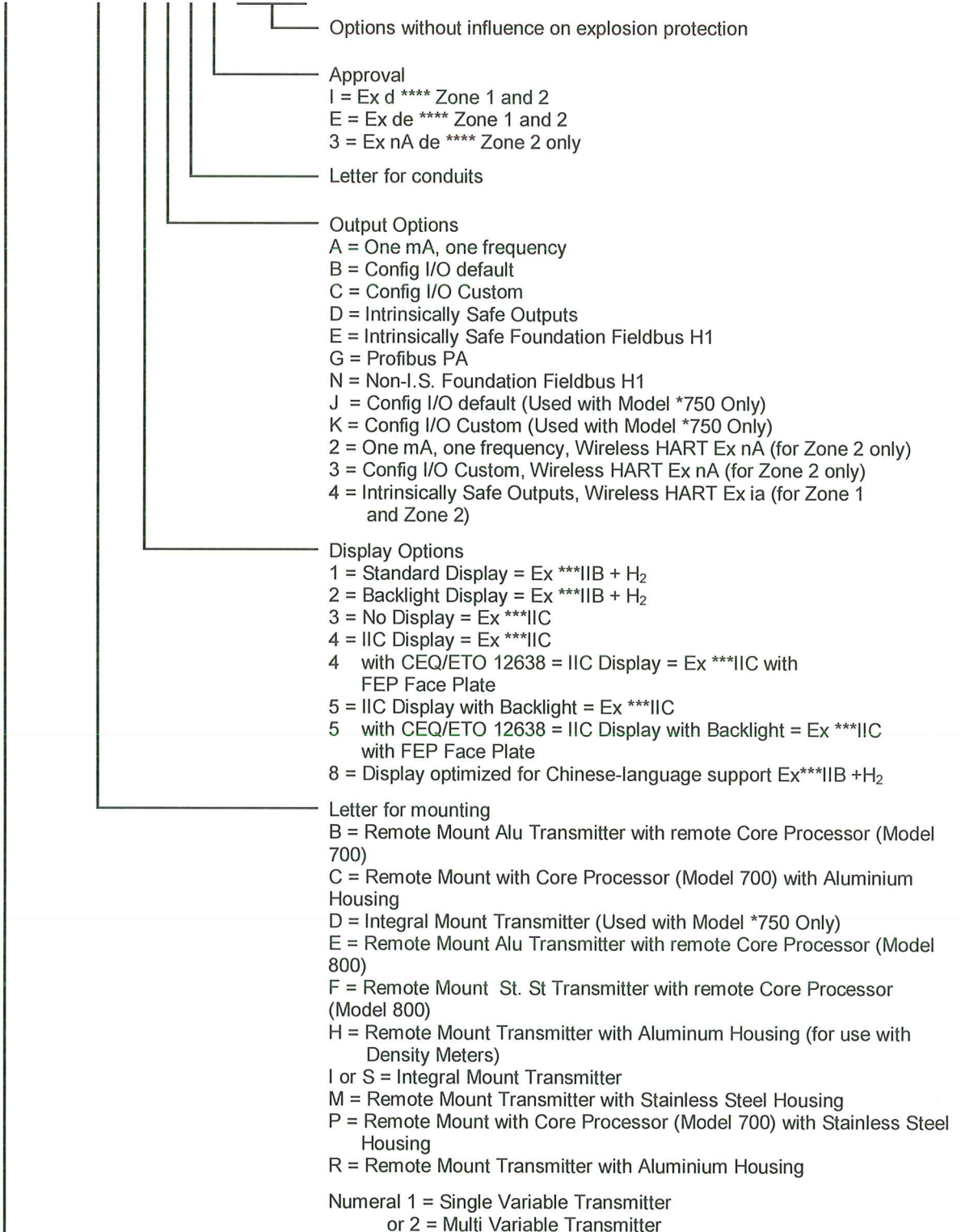


Certificate No.: **IECEX BVS 04.0006 X issue no. 8**
Annex
Page 1 of 5

Transmitter type *700*1***** and *750*1*****

Instead of the *** in the complete denomination letters and numerals will be inserted which characterize the following variations:

Type * 7 0 0 * 1 * * * * * * * * * *
Type * 7 5 0 * 1 * * * * * * * * * *





IECEX Certificate of Conformity



Certificate No.: IECEx BVS 04.0006 X issue no. 8
Annex
Page 2 of 5

Modified parameters

1	Mains circuit (terminals 9 - 10) Voltage Max. voltage	Um	AC/DC AC/DC	18 - 240 V + 10 % 265	V V
2	Non intrinsically safe input/output circuits (terminals 1 - 6) only for type *700*1*(A,B,C,J,K,2,3)***** Voltage Non intrinsically safe circuits FIELDBUS (terminals FIELDBUS 1 - 2) only for type *700*1*N*****: Voltage Current Power Effective internal inductance Effective internal capacitance	Um	AC/DC DC	33 380 5.32 negligible negligible	V mA W V mA
3	Intrinsically safe output circuits type of protection Ex ia IIC				
3.1	Fieldbus circuit (terminals Fieldbus 1 and 2) only for type 27*0*1*E***** and type 27*0*1*G*****: Voltage Current Power Effective internal inductance Effective internal capacitance For the connection of a FIELDBUS circuit in accordance with FISCO model (Annex G of IEC 60079-11).	Ui Ii Pi Li Ci	DC	33 380 5.32 negligible negligible	V mA W V mA
3.2	Intrinsically Safe Outputs (terminals 1 – 2, mA output 1 and terminals 5 – 6, mA output 2) only for type *7*0*1*D***** , values for each circuit: Voltage Current Power Effective internal inductance Effective internal capacitance	Ui Ii Pi Li Ci	DC	30 300 1 negligible negligible	V mA W V mA
3.3	Intrinsically Safe Outputs (terminals 1 – 2, mA output 1) only for type *7*0*1*4*****: Voltage Current Power Effective internal inductance Effective internal capacitance Intrinsically Safe Outputs (terminals 5 – 6, mA output 2) only for type *7*0*1*4*****: Voltage Current Power Effective internal inductance Effective internal capacitance	Ui Ii Pi Li Ci Ui Ii Pi Li Ci	DC DC	30 200 1 negligible negligible 30 300 1 negligible negligible	V mA W V mA V mA W V mA
3.4	Intrinsically Safe Outputs (terminals 3 - 4 Frequency Output) only for type *7*0*1*(D,4)*****: Voltage Current Power Effective internal inductance Effective internal capacitance	Ui Ii Pi Li Ci	DC	30 100 0.75 negligible negligible	V mA W V mA



IECEX Certificate of Conformity



Certificate No.: IECEx BVS 04.0006 X issue no. 8
Annex
Page 3 of 5

4	Intrinsically safe power and signal circuits for type *700(B,E,F,H,M,R)1*****:				
	Voltage	Uo	DC	17.22	V
	Current	Io		0.484	A
	Limited by a fuse with a nominal value of			0.16	A
	Power	Po		2.05	W
	Type of protection Ex ib IIC				
	Max. external inductance	Lo		151	μH
	Max. external capacitance	Co		333	nF
	Max. inductance/resistance ratio	Lo/Ro		17.06	μH/Ω
	Type of protection Ex ib IIB				
	Max. external inductance	Lo		607	μH
	Max. external capacitance	Co		2.04	μF
	Max. inductance/resistance ratio	Lo/Ro		68.2	μH/Ω
5	Ambient temperature range				
	Models *7*0(B,R,E,F,H,M)1(1,2,3)(A,B,C,D,E,G,N,J,K,2,3,4)*****	Ta			
	Models *7*0(B,R,E,H)1(4,5)(A,B,C,D,E,G,N,J,K,2,3,4)*****	Ta		-40 °C to +60 °C	
	Models *7*0(B,R,E,H)1(4,5)(A,B,C,D,E,G,N,J,K,2,3,4)***** CIC A1	Ta		-20 °C to +60 °C	
	Models *7*0(F,M)1(4,5)(A,B,C,D,E,G,N,J,K,2,3,4)*****	Ta		-40 °C to +60 °C	
	Models *7*0(B,R,H)1(1,2,3)(A,B,C,D,E,G,N,J,K,2,3,4)***** ETO16097 Ta			-40 °C to +60 °C	
				-35 °C to +60 °C	
6	Intrinsically safe power and signal circuits for type *7*0(C,I,S,D,P)1*****:				
6.1	Drive circuit; terminal number 3 and 4				
	Voltage	Uo	DC	10.5	V
	Current	Io		2.45	A
	Power	Po		2.54	W
	Internal resistance	Ri		4.32	Ω
	For group IIC				
	Max. external capacitance	Co		2.41	μF
	Max. external inductance	Lo		5.9	μH
	Max. external inductance/resistance ratio	Lo/Ro		5.5	μH/Ω
	For group IIB				
	Max. external capacitance	Co		16.8	μF
	Max. external inductance	Lo		24	μH
	Max. external inductance/resistance ratio	Lo/Ro		22	μH/Ω

The maximum external inductance L (sensor coil) can be calculated with the following term:

$$L = 2 \times E \times \left(\frac{Ri + Ro}{1.5 \times Uo} \right)^2$$

whereby E = 40 μJ for group IIC and E = 160 μJ for group IIB will be inserted.

6.2	Pick-off circuits terminal numbers 5-6 and 7-8				
	Voltage	Uo	DC	17.3	V
	Current	Io		6.9	mA
	Power	Po		30	mW



IECEX Certificate of Conformity



Certificate No.: IECEx BVS 04.0006 X issue no. 8
Annex
Page 4 of 5

For group IIC					
Max. external capacitance	Co	353	nF		
Max. external inductance	Lo	742	mH		
Max. external inductance/resistance ratio	Lo/Ro	1.19	mH/Ω		
For group IIB					
Max. external capacitance	Co	2.06	μF		
Max. external inductance	Lo	2.97	H		
Max. external inductance/resistance ratio	Lo/Ro	4.75	mH/Ω		
6.3	Temperature circuit terminal number 1, 2 and 9				
Voltage	Uo	DC	17.3	V	
Current	Io		26	mA	
Power	Po		112	mW	
For group IIC					
Max. external capacitance	Co	353	nF		
Max. external inductance	Lo	52.6	mH		
Max. external inductance/resistance ratio	Lo/Ro	0.32	mH/Ω		
For group IIB					
Max. external capacitance	Co	2.06	μF		
Max. external inductance	Lo	210	mH		
Max. external inductance/resistance ratio	Lo/Ro	1.26	mH/Ω		
6.4	Ambient temperature range				
Models *7*0 (C,I,S,D,P)1(1,2,3)(A,B,C,D,E,G,N,J,K,2,3,4)*****	Ta		-40 °C to +55 °C		
Models *7*0 (C,I,S,D)1(4,5)(A,B,C,D,E,G,N,J,K,2,3,4)*****	Ta		-20 °C to +55 °C		
Models *7*0 (C, I, S, D) 1(4, 5) (A,B,C,D,E,G,N,J,K,2,3,4)***** CIC A1	Ta		-40 °C to +55 °C		
Models *7*0 P 1(4, 5) (A,B,C,D,E,G,N,J,K,2,3,4)*****	Ta		-40 °C to +55 °C		

Marking

The name of the manufacturer or his trademark
Serial number
Certificate number

Type *7*0(B,R,E,F,H,M)1(1,2,3,8)(A,B,C,D,E,G,N,J,K,2,3,4)*****	Ta	-40°C to +60°C
Type *7*0(B,R,E,H)1(4,5)(A,B,C,D,E,G,N,J,K,2,3,4)*****	Ta	-20°C to +60°C
Type *7*0(B,R,E,H)1(4,5)(A,B,C,D,E,G,N,J,K,2,3,4)***** CIC A1	Ta	-40°C to +60°C
Type *7*0(F,M)1(4,5)(A,B,C,D,E,G,N,J,K,2,3,4)*****	Ta	-40°C to +60°C
Type *7*0(B,R,H)1(1,2,3,8)(A,B,C,D,E,G,N,J,K,2,3,4)***** ETO16097	Ta	-35°C to +60°C
Type *7*0(C,I,S,D,P)1(1,2,3,8) (A,B,C,D,E,G,N,J,K,2,3,4)*****	Ta	-40°C to +55°C
Type *7*0(C,I,S,D)1(4,5) (A,B,C,D,E,G,N,J,K,2,3,4)*****	Ta	-20°C to +55°C
Type *7*0(C,I,S,D)1(4,5) (A,B,C,D,E,G,N,J,K,2,3,4)***** CIC A1	Ta	-40°C to +55°C
Type *7*0P1(4,5) (A,B,C,D,E,G,N,J,K,2,3,4)*****	Ta	-40°C to +55°C

Certificate No.: IECEx BVS 04.0006 X issue no. 8
Annex
Page 5 of 5

Type	Type of protection	IP protection
*7*0(B,R,E,H)1(1,2,8)(A,B,C,N,J,K)*I****	Ex d [ib] IIB+H ₂ T6 Gb	IP66/IP67
*7*0(B,R,E,H)1(1,2,8)(A,B,C,N,J,K)*E****	Ex de [ib] IIB+H ₂ T6 Gb	IP66/IP67
*7*0(B,R,E,H)1(3,4,5)(A,B,C,N,J,K)*I**** with or w/o CIC A1	Ex d [ib] IIC T6 Gb	IP66/IP67
*7*0(B,R,E,H)1(3,4,5)(A,B,C,N,J,K)*E**** with or w/o CIC A1	Ex de [ib] IIC T6 Gb	IP66/IP67
*7*0(B,R,E,H)1(1,2)(D,E,G)*I****	Ex d [ia Ga] [ib] IIB+H ₂ T6 Gb	IP66/IP67
*7*0(B,R,E,H)1(1,2)(D,E,G)*E****	Ex de [ia Ga] [ib] IIB+H ₂ T6 Gb	IP66/IP67
*7*0(B,R,E,H)1(3,4,5)(D,E,G)*I**** with or w/o CIC A1	Ex d [ia Ga] [ib] IIC T6 Gb	IP66/IP67
*7*0(B,R,E,H)1(3,4,5)(D,E,G)*E**** with or w/o CIC A1	Ex de [ia Ga] [ib] IIC T6 Gb	IP66/IP67
*7*0(B,R,E,H)1(1,2,8)(2,3)*3****	Ex nA d e [ib Gb] IIB+H ₂ T4 Gc	IP66
*7*0(B,R,E,H)1(3,4,5)(2,3)*3****	Ex nA d e [ib Gb] IIC T4 Gc	IP66
*7*0(B,R,E,H)1(1,2) 4*E****	Ex d e [ia Ga] [ib] IIB+H ₂ T4 Gb	IP66
*7*0(B,R,E,H)1(3,4,5) 4*E**** with or w/o CIC A1	Ex d e [ia Ga] [ib] IIC T4 Gb	IP66
*7*0(C,I,S,D)1(1,2,8)(A,B,C,N,J,K)*I****	Ex d [ib] IIB+H ₂ T5 Gb	IP66/IP67
*7*0(C,I,S,D)1(1,2,8)(A,B,C,N,J,K)*E****	Ex de [ib] IIB+H ₂ T5 Gb	IP66/IP67
*7*0(C,I,S,D)1(3,4,5)(A,B,C,N,J,K)*I**** with or w/o CIC A1	Ex d [ib] IIC T5 Gb	IP66/IP67
*7*0(C,I,S,D)1(3,4,5)(A,B,C,N,J,K)*E**** with or w/o CIC A1	Ex de [ib] IIC T5 Gb	IP66/IP67
*7*0(C,I,S,D)1(1,2)(D,E,G)*I****	Ex d [ia Ga] [ib] IIB+H ₂ T5 Gb	IP66/IP67
*7*0(C,I,S,D)1(1,2)(D,E,G)*E****	Ex de [ia Ga] [ib] IIB+H ₂ T5 Gb	IP66/IP67
*7*0(C,I,S,D)1(3,4,5)(D,E,G)*I**** with or w/o CIC A1	Ex d [ia Ga] [ib] IIC T5 Gb	IP66/IP67
*7*0(C,I,S,D)1(3,4,5)(D,E,G)*E**** with or w/o CIC A1	Ex de [ia Ga] [ib] IIC T5 Gb	IP66/IP67
*7*0(C,I,S,D)1(1,2,8)(2,3)*3****	Ex nA d e [ib Gb] IIB+H ₂ T4 Gc	IP66
*7*0(C,I,S,D)1(3,4,5)(2,3)*3**** with or w/o CIC A1	Ex nA d e [ib Gb] IIC T4 Gc	IP66
*7*0(C,I,S,D)1(1,2) 4*E****	Ex d e [ia Ga] [ib] IIB+H ₂ T4 Gb	IP66
*7*0(C,I,S,D)1(3,4,5) 4*E**** with or w/o CIC A1	Ex d e [ia Ga] [ib] IIC T4 Gb	IP66
*7*0(F,M)1(1,2,8)(A,B,C,N,J,K)*I****	Ex d [ib] IIB+H ₂ T6 Gb	IP66/IP67
*7*0(F,M)1(3,4,5)(A,B,C,N,J,K)*I****	Ex d [ib] IIC T6 Gb	IP66/IP67
*7*0(F,M)1(1,2)(D,E,G)*I****	Ex d [ia Ga] [ib] IIB+H ₂ T6 Gb	IP66/IP67
*7*0(F,M)1(3,4,5)(D,E,G)*I****	Ex d [ia Ga] [ib] IIC T6 Gb	IP66/IP67
*7*0P1(1,2,8)(A,B,C,N,J,K)*I****	Ex d [ib] IIB+H ₂ T5 Gb	IP66/IP67
*7*0P1(3,4,5)(A,B,C,N,J,K)*I****	Ex d [ib] IIC T5 Gb	IP66/IP67
*7*0P1(1,2)(D,E,G)*I****	Ex d [ia Ga] [ib] IIB+H ₂ T5 Gb	IP66/IP67
*7*0P1(3,4,5)(D,E,G)*I****	Ex d [ia Ga] [ib] IIC T5 Gb	IP66/IP67

5 min delay time after switch off

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Contact	Dipl.-Ing. G. Schumann
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Date	2014-02-07

Our reference	BVS-Schu/Sch A 20131209
Your sign	H. van Holland
Your reference	2013-12-09

Transmitter type 700*1*** und *750*1*******

Dear Sir or Madame,

We added the Revision Report as of 2014-02-07 to the Test and Assessment Report DE/BVS/04/2023 (DE/BVS/ExTR06.0008).

We confirm, that the Certificate

IECEX BVS 04.0006X as of 02.04.2004, last modification as of 2013-04-19

is still valid.

Yours sincerely
DEKRA EXAM GmbH



Dr. Franz Eickhoff

Dr. Michael Wittler

Enclosure