



Translation

- (1) **EC-Type Examination Certificate**
- (2) **- Directive 94/9/EC -
Equipment and protective systems intended for use
in potentially explosive atmospheres**
- (3) **DMT 01 ATEX E 083 X**
- (4) **Equipment: Sensor Type T*** *****Z*******
- (5) **Manufacturer: Micro Motion, Inc.**
- (6) **Address: Boulder, Co. 80301, USA**
- (7) The design and construction of this equipment and any acceptable variation thereto are specified in the schedule to this type examination certificate.
- (8) The certification body of Deutsche Montan Technologie GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.
The examination and test results are recorded in the test and assessment report BVS PP 01.2062 EG.
- (9) The Essential Health and Safety Requirements are assured by compliance with:
- EN 50014:1997+A1-A2 General requirements
EN 50020:1994 Intrinsic safety 'i'
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate
- (12) The marking of the equipment shall include the following:

II 2G EEx IIB/IIC ib T1-6

Deutsche Montan Technologie GmbH

Essen, dated 25. June 2001

Signed:

DMT-Certification body

Signed:

Head of special services unit

(13) Appendix to

(14) **EC-Type Examination Certificate**

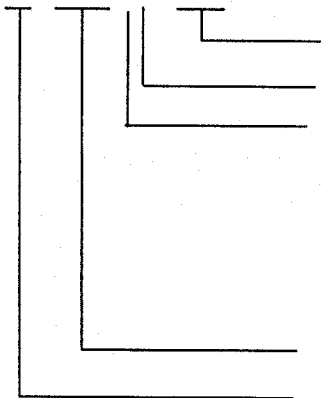
DMT 01 ATEX E 083 X

(15) 15.1 Subject and type

Sensor type T*** *****Z*****

Instead of the *** letters and numerals will be inserted which characterise the following modifications:

type T*** *****Z*****



Marking without influence to the type of protection

letter for conduit connections

letter for electronic interface

A = with signal processing device type 700 integrated

C = mounted together with transmitter Typ *700****

D = with signal processing device type 700 integrated

S = with signal processing device type 700 integrated

R = with junction box for 9-wire

Marking without influence to the type of protection

3 numerals for type of sensor

15.2 Description

The flow sensor in combination with a transmitter is used for flow measurement.

The flow sensor, which consists of magnetically excited oscillating tubes, contains as electrical components coils, resistors, temperature sensors and terminals and connectors.

Instead of the junction box an enclosure with an inside mounted signal processing device type 700 (DMT 01 ATEX E 081 U) can be used; this variation gets the denomination type T*** *****A*Z***** or type T*** *****D*Z***** or type T*** *****S*Z*****.

Alternatively a transmitter type *700***** (DMT 01 ATEX E 082 X) can be mounted directly to the junction box; this variation gets the denomination type T*** *****C*Z*****.

By mounting the sensor directly to the transmitter the use of the unit will be modified according to the following table:

Sensor	T025 *****C*Z*****, T050 *****C*Z***** T075 *****C*Z***** T100 *****C*Z*****	T150 *****C*Z*****
Transmitter type *700*11*****	EEx ib IIB+H ₂ T1-5	EEx ib IIB T1-5
Transmitter type *700*13*****	EEx ib IIC T1-5	EEx ib IIB T1-5

The flow sensor may also be used for measurements with flammable substances under the provision that they do not form permanently or frequently an explosive atmosphere. The flow sensor then must be included in the recurrent pressure test.

15.3 Parameters

15.3.1 Typ T*** *****R*Z*****

15.3.1.1 Drive circuit (connections 1 - 2 or red and brown)

voltage	U _i	DC	11,4	V
current	I _i		2,45	A
power	P _i		2,54	W

effective internal capacitance negligible

sensor type	inductance [mH]	coil resistance bei - at -40 °C [Ω]
T025 *****R*Z*****	4,65	116,2
T050 *****R*Z*****	4,65	116,2
T075 *****R*Z*****	9,8	171
T100 *****R*Z*****	10,5	176,5
T150 *****R*Z*****	11,6	91

15.3.1.2 Pick-off circuit (connections 5 , 9 and 6, 8 or green, white and blue, gray)

voltage	U _i	DC	30	V
current	I _i		101	mA
power	P _i		750	mW

effective internal capacitance negligible

sensor type	inductance [mH]	coil resistance bei - at -40 °C [Ω]	serial resistor bei - at -40 °C [Ω]
T025 *****R*Z*****	12,5	206,3	568
T050 *****R*Z*****	12,5	145,2	568
T075 *****R*Z*****	13,1	97,8	568
T100 *****R*Z*****	13,1	97,8	568
T150 *****R*Z*****	13,1	97,8	568

15.3.1.3 temperature sensor circuit (connections 3, 4 and 7 or orange, yellow and violet)

voltage	U _i	DC	30	V
current	I _i		101	mA
power	P _i		750	mW

effective internal capacitance negligible

effective internal inductance negligible



15.3.1.4 regulation of temperature class

The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following table:

Sensor	Maximum temperature of the medium -40 °C up to					
	T1	T2	T3	T4	T5	T6
T025 *****R*Z*****	150	150	150	98	63	48
T050 *****R*Z*****	150	150	150	98	63	48
T075 *****R*Z*****	150	150	150	98	63	48
T100 *****R*Z*****	150	150	150	98	63	48
T150 *****R*Z*****	150	150	150	98	63	48

15.3.1.5 ambient temperature range T_a -40 °C up to +55 °C

The use of the sensor at an ambient temperature higher than 55 °C is possible, provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

15.3.2 Type T*** *****A*Z*****, Type T*** *****D*Z***** and Type T*** *****S*Z*****

15.3.2.1 Input circuit (terminals 1 - 4)

voltage	U_i	DC	17,3	V
current	I_i		484	mA
power	P_i		2,1	W
effective internal capacitance	C_i		2200	pF
effective internal inductance	L_i		30	μH

15.3.2.2 regulation of temperature class

The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following table:

Sensor	Maximum temperature of the medium -40 °C up to		
	T1 - T3	T4	T5
T*** *****A*Z*****	150	98	63
T*** *****D*Z*****			
T*** *****S*Z*****			

15.3.2.3 ambient temperature range T_a -40 °C up to +55 °C

15.3.3 Type T*** *****C*Z*****

15.3.3.1 electrical parameters see DMT 01 ATEX E 082 X for the transmitter type *700*****

15.3.3.2 regulation of temperature class

The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following table:

Sensor	Maximum temperature of the medium -40 °C up to		
	T1 - T3	T4	T5
T*** **C*Z****	150	98	63

15.3.3.3 ambient temperature range

Ta

-40 °C up to +55 °C

(16) Test and assessment report

BVS PP 01.2062 EG as of 25.06.2001

(17) Special conditions for safe use

By mounting the sensor T*** **C*Z**** directly to the transmitter *700***** the use of the unit will be modified according to the following table:

Sensor	T025 **C*Z****, T050 **C*Z****, T075 **C*Z****, T100 **C*Z****	T150 **C*Z****
Transmitter type *700*11*****	EEx ib IIB+H ₂ T1-5	EEx ib IIB T1-5
Transmitter type *700*13*****	EEx ib IIC T1-5	EEx ib IIB T1-5


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

45307 Essen, 25.06.2001
BVS-Schu/Mi A 20010214

Deutsche Montan Technologie GmbH



 DMT Certification body



 Head of special services unit



Translation



1st Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate
DMT 01 ATEX E 083 X

Equipment: Sensor type .T*** *****Z*****

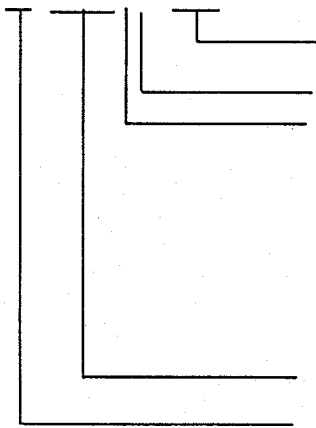
Manufacturer: Micro Motion, Inc.

Address: Boulder, Co. 80301, USA

Description

The sensor can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report and the following variations are available:

type T*** *****Z*****



Marking without influence to the type of protection

letter for conduit connections

letter for electronic interfac

A = with signal processing device type 700 integrated

B = with signal processing device type 700 integrated

C = mounted together with transmitter Typ *700****

F = mounted together with transmitter Typ *700****

R = with junction box for 9-wire

H = with junction box for 9-wire

Marking without influence to the type of protection

3 numerals for type of sensor

Parameters

1 Type T*** *****R*Z***** and T*** *****H*Z*****

1.1 Drive circuit (connections 1 - 2 or red and brown)

Table with 5 columns: parameter name, symbol, unit, value, and unit. Rows include voltage (Ui, DC, 11,4, V), current (Ii, 2,45, A), and power (Pi, 2,54, W).

effective internal capacitance negligible

sensor type	inductance [mH]	coil resistance at -40 °C [Ω]
T025 *****R*Z***** T025 *****H*Z*****	4,65	116,2
T050 *****R*Z***** T050 *****H*Z*****	4,65	116,2
T075 *****R*Z***** T075 *****H*Z*****	9,8	171
T100 *****R*Z***** T100 *****H*Z*****	10,5	176,5
T150 *****R*Z***** T150 *****H*Z*****	11,6	91

1.2 Pick-off circuit (connections 5 , 9 and 6, 8 or green, white and blue, gray)

voltage	U_i	DC	30	V
current	I_i		101	mA
power	P_i		750	mW

effective internal capacitance

negligible

sensor type	inductance [mH]	coil resistance at -40 °C [Ω]	serial resistor at -40 °C [Ω]
T025 *****R*Z***** T025 *****H*Z*****	12,5	206,3	568
T050 *****R*Z***** T050 *****H*Z*****	12,5	145,2	568
T075 *****R*Z***** T075 *****H*Z*****	13,1	97,8	568
T100 *****R*Z***** T100 *****H*Z*****	13,1	97,8	568
T150 *****R*Z***** T150 *****H*Z*****	13,1	97,8	568

1.3 temperature circuit (connections 3, 4 and 7 or orange, yellow and violet)

voltage	U_i	DC	30	V
current	I_i		101	mA
power	P_i		750	mW

effective internal capacitance

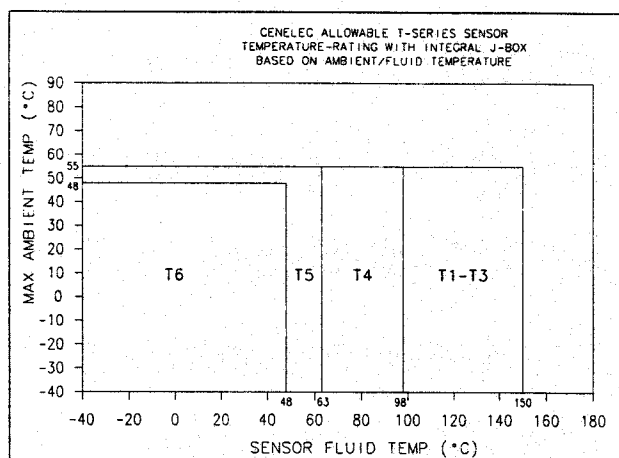
negligible

effective internal inductance

negligible

1.4 regulation of temperature class

The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:



1.5 ambient temperature range

T_a -40 °C up to +55 °C

The use of the sensor at an ambient temperature higher than 55 °C is possible, provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

2 Type T*** *****A*Z***** and type T*** *****B*Z*****

2.1 Input circuit (terminals 1 - 4)

voltage

U_i DC 17,3 V

current

I_i 484 mA

power

P_i 2,1 W

effective internal capacitance

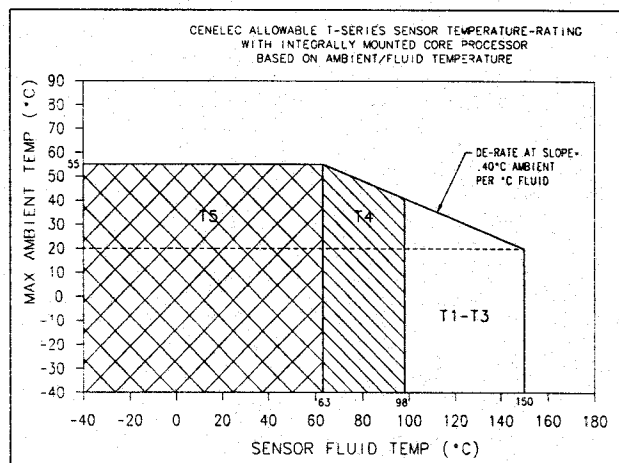
C_i 2200 pF

effective internal inductance

L_i 30 μ H

2.2 regulation of temperature class

The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

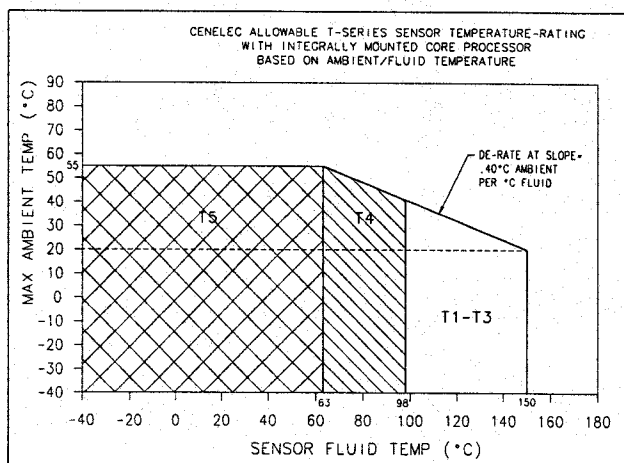


2.3 ambient temperature range

T_a -40 °C up to +55 °C

3 Type T*** *****C*Z***** and type T*** *****F*Z*****
 3.1 electrical parameters see DMT 01 ATEX E 082 X for the transmitter type *700*****

3.2 regulation of temperature class
 The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:



3.3 ambient temperature range T_a -40 °C up to +55 °C

Test and assessment report
 BVS PP 01.2062 EG as of 11.09.2001

Special conditions for safe use

By mounting the sensor T*** *****C*Z***** or type T*** *****F*Z***** directly to the transmitter type *700***** the use of the unit will be modified according to the following table:

Sensor	T025 *****C*Z*****, T025 *****F*Z*****, T050 *****C*Z*****, T050 *****F*Z*****, T075 *****C*Z*****, T075 *****F*Z*****, T100 *****C*Z*****, T100 *****F*Z*****,	T150 *****C*Z*****, T150 *****F*Z*****
Transmitter type *700*11*****	EEx ib IIB+H ₂ T1-5	EEx ib IIB T1-5
Transmitter type *700*13*****	EEx ib IIC T1-5	EEx ib IIB T1-5

Deutsche Montan Technologie GmbH
 Essen, dated 11. September 2001

Signed: Jockers

 DMT-Certification body

Signed: Dill

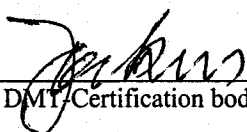
 Head of special services unit




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

45307 Essen, 11. September 2001
BVS-Schu/Mi A 20010560

Deutsche Montan Technologie GmbH


DMT Certification body


Head of special services unit



Translation



2nd Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate DMT 01 ATEX E 083 X

Equipment: Sensor type T*** *****Z*****
Manufacturer: Micro Motion, Inc.
Address: Boulder, Co. 80301, USA

Description

The sensor can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report and the following variations are also available

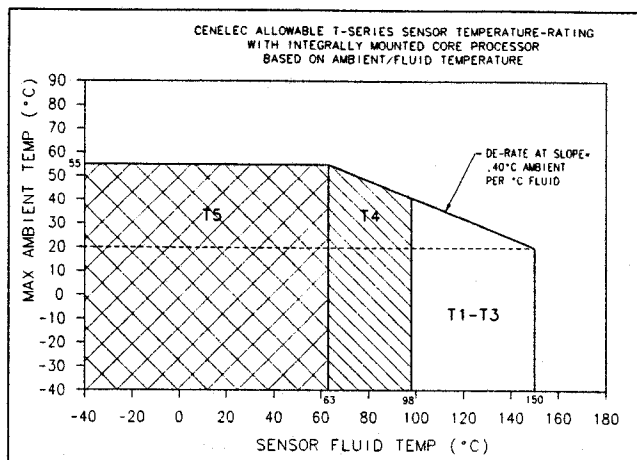
Typ T*** *****D*Z*****

Typ T*** *****E*Z*****

Parameters

Type T*** *****D*Z***** and type T*** *****E*Z*****

- | | | | | | |
|---|---------------------------------|----|----|------|----|
| 1 | Input circuit (terminals 1 - 4) | | | | |
| | voltage | Ui | DC | 17,3 | V |
| | current | Ii | | 484 | mA |
| | power | Pi | | 2,1 | W |
| | effective internal capacitance | Ci | | 2200 | pF |
| | effective internal inductance | Li | | 30 | μH |
- 2 regulation of temperature class
The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:



2.3 ambient temperature range

Ta -40 °C up to +55 °C

Test and assessment report

BVS PP 01.2062 EG as of 25.04.2002

Deutsche Montan Technologie GmbH

Essen, dated 25. April 2002

Jockers

DMT-Certification body

Eickhoff

Head of special services unit

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

45307 Essen, 25.04. 2002
BVS-Schu/Mi A 20020141

Deutsche Montan Technologie GmbH

DMT-Certification body

Head of special services unit



DMT · Postfach 13 01 01 · D-45291 Essen

Micro Motion, Inc.
7070 Winchester Circle

Boulder, Co.

USA

Ihr Zeichen Henk van Holland
Ihre Nachricht 23.09.2002
Unser Zeichen A 20020656 BVS-Schu/Mi
Durchwahl Tel.: (0201) 172 3958
e-mail Schumann@dmf.de
Datum 06.11.2002

DIN EN ISO
9001
zertifiziert

Zertifizierungsstelle

Am Technologiepark 1
D-45307 Essen
Telefon (02 01) 1 72-14 16
Telefax (02 01) 1 72-17 16
e-mail: jockers@dmf.de
http://www.dmf.de

Ladies and Gentlemen,

we added the Revision Report as of 06.11.2002 to the Test and Assessment Report
BVS PP 01.2062 EG.

We confirm, that the Certificate


DMT 01 ATEX E 083 X as of 25.04.2002

is still valid.

Kind regards
Deutsche Montan Technologie GmbH

Enclosures: Revision Report
Descriptive Documents


(Jockers)


(Eickhoff)

**Deutsche
Montan Technologie GmbH**

Aufsichtsratsvorsitzender:
Ulrich Weber

Geschäftsführung:
Dr.-Ing. Rolf Petry (Vors.)
Dr.-Ing. Reinhard Bassier
Heinz-Gerd Körner
Dipl.-Kfm. Udo Scheer

Sitz: Essen
Amtsgericht Essen HRB 810

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http://www.dmf.de

EXAM · Postfach 10 27 48 · D-44727 Bochum

Micro Motion, Inc.
7070 Winchester Circle

Boulder, Co.

USA

Zertifizierungsstelle

Carl-Bayling-Haus
Dinnendahlstraße 9
44809 Bochum

Telefon 0201 17 2 - 38 55
Telefax 0201 17 2 - 38 24
e-mail: Jockers@bg-exam.de

Ihr Zeichen Henk van Holland
Ihre Nachricht 27.03.2003
Unser Zeichen A 20030289 BVS-Schu/Mi
Durchwahl Tel.: (0201) 172 3958
e-mail Schumann@bg-exam.de
Datum 24.06.2003

Ladies and Gentlemen,


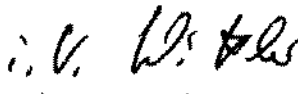
we added the Revision Report as of 24.06.2003 to the Test and Assessment Report
BVS PP 01.2062 EG.

We confirm, that the Certificate

DMT 01 ATEX E 083 X as of 25.06.2001

is still valid.

Kind regards
BBG Prüf- und Zertifizier GmbH

 
(Jockers) (Wittler)
Enclosures: Revision Report
Descriptive Documents

Exam
BBG Prüf- und Zertifizier
GmbH

Geschäftsführung:
Dr.-Ing. Günter Levin (Vors.)
Dr.-Ing. Uli Barth

Sitz: Bochum
Amtsgericht Bochum
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http://www.bg-exam.de



Translation

3rd Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate DMT 01 ATEX E 083 X

Equipment: Sensor type T*** *****Z*****

Manufacturer: Micro Motion, Inc.

Address: Boulder, Co. 80301, USA

Description

The sensor can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report; the sensor may also be mounted to transmitters type Typ *7001(2, 4 or 5)*****.

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:
EN 50014:1997+A1-A2 General requirements
EN 50020:2002 Intrinsic safety 'i'

Marking of the sensors:

	Marking
T025***** ¹ *Z*****	II 2G EEx ib IIC T1-T6
T050***** ¹ *Z*****	II 2G EEx ib IIC T1-T6
T075***** ¹ *Z*****	II 2G EEx ib IIC T1-T6
T100***** ¹ *Z*****	II 2G EEx ib IIC T1-T6
T150***** ¹ *Z*****	II 2G EEx ib IIB T1-T6
T025***** ² *Z*****	II 2G EEx ib IIC T1-T5
T050***** ² *Z*****	II 2G EEx ib IIC T1-T5
T075***** ² *Z*****	II 2G EEx ib IIC T1-T5
T100***** ² *Z*****	II 2G EEx ib IIC T1-T5
T150***** ² *Z*****	II 2G EEx ib IIB T1-T5

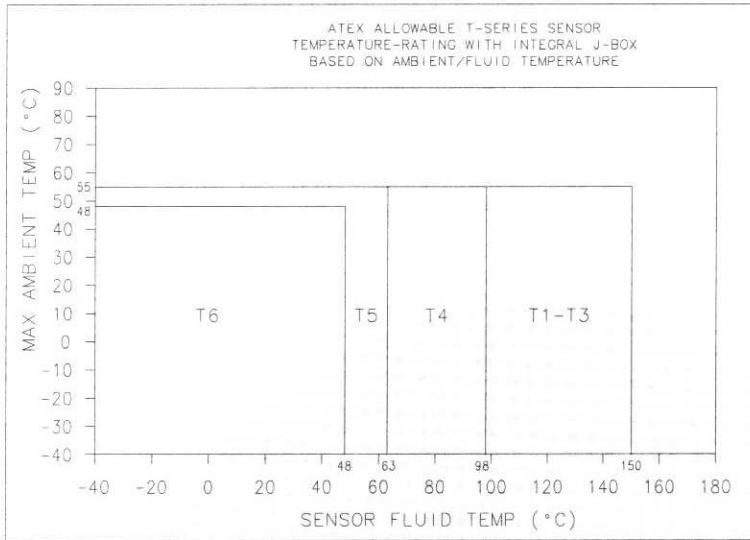
- ¹⁾ At this place the letter R or H will be inserted.
²⁾ At this place the letter A, B, D, E, Q, V, W or Y will be inserted.

Modified parameters

Regulation of temperature class

The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

1 Type T*** *****(R or H)*Z*****



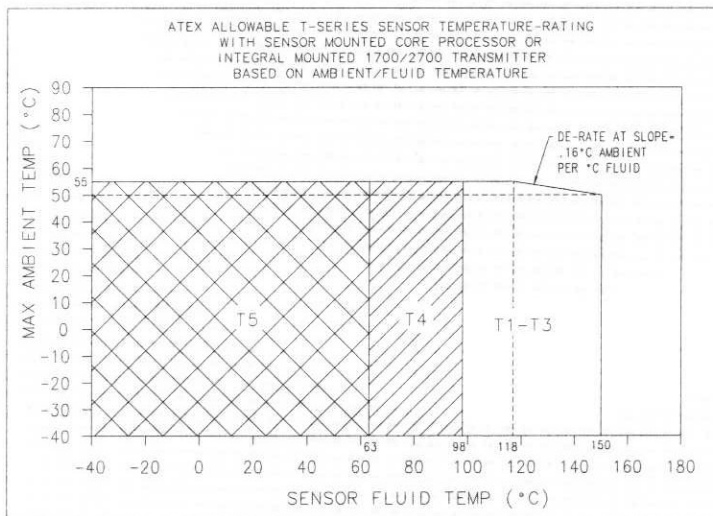
Ambient temperature range

Ta

-40 °C up to +55 °C

The use of the sensor at higher ambient temperatures is possible, provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

2 Type T*** *****(A, B, D, E, Q, V, W, Y)*Z*****

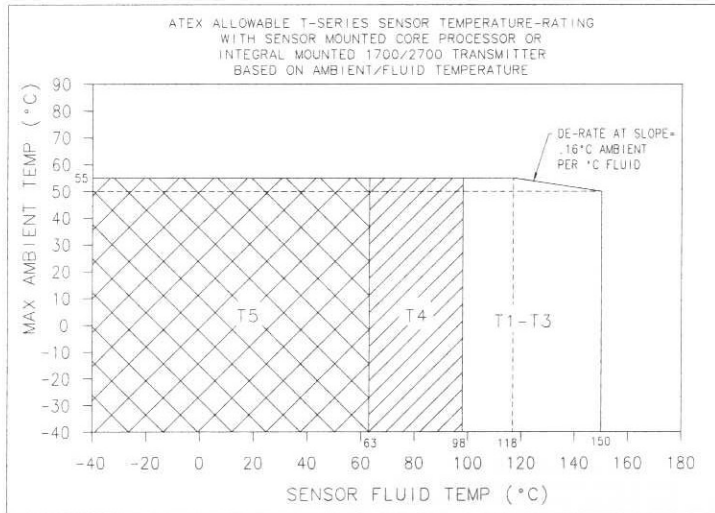


Ambient temperature range

Ta

-40 °C up to +55 °C

3 Type T*** *****(C or F)*Z*****



Ambient temperature range

Ta -40 °C up to +55 °C

Informations relevant for safety

By mounting the sensor type T*** *****(C or F)*Z***** directly to the transmitter *700***** the use of the unit will be modified according to the following :

	T025 *****(C or F)*Z***** T050 *****(C or F)*Z***** T075 *****(C or F)*Z***** T100 *****(C or F)*Z***** T025 *****(F or C)*Z***** T050 *****(F or C)*Z***** T075 *****(F or C)*Z***** T100 *****(F or C)*Z*****	T150 *****(C or F)*Z***** T150 *****(F or C)*Z*****
Transmitter Typ *700*1 ¹⁾ *****	EEx ib IIB+H ₂ T1-T5	EEx ib IIB T1-T5
Transmitter Typ *700*1 ²⁾ *****	EEx ib IIC T1-T5	EEx ib IIB T1-T5

- 1) At this place the numeral 1 or 2 will be inserted.
- 2) At this place the numeral 3, 4 or 5 will be inserted.

Test and assessment report
 BVS PP 01.2062 EG as of 22.06.2004

EXAM BBG Prüf- und Zertifizier GmbH

Bochum, dated 22. June 2004

Signed: Dr. Jockers

Certification body

Signed: Dr. Eickhoff

Special services unit


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

44809 Bochum, 22.06.2004
BVS-Schu/Mi A 20040150

EXAM BBG Prüf- und Zertifizier GmbH



Certification body



Special services unit



Translation

4th Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate
DMT 01 ATEX E 083 X

Equipment: Sensor type T*** *****Z*****
Manufacturer: Micro Motion, Inc.
Address: Boulder, Co. 80301, USA

Description

The sensor type T*** *****Z***** meets as well category 2D

The sensors can also have an alternative 9-wire feed-through.

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:
EN 50014:1997+A1-A2 General requirements
EN 50020:2002 Intrinsic safety 'i'
EN 50281-1-1:1998+A1 Dust explosion protection

Marking of the sensors:

Type	Type of protection gas	Type of protection dust
T025*****(R oder H)*Z*****	EEx ib IIC T1-T6	IP65 T 182 °C – T 80 °C
T050*****(R oder H)*Z*****	EEx ib IIC T1-T6	IP65 T 182 °C – T 80 °C
T075*****(R oder H)*Z*****	EEx ib IIC T1-T6	IP65 T 182 °C – T 80 °C
T100*****(R oder H)*Z*****	EEx ib IIC T1-T6	IP65 T 182 °C – T 80 °C
T150*****(R oder H)*Z*****	EEx ib IIC T1-T6	IP65 T 182 °C – T 80 °C
T025*****(A, B, D, E, Q, V, W, Y)*Z*****	EEx ib IIC T1-T5	IP65 T 182 °C – T 95 °C
T050*****(A, B, D, E, Q, V, W, Y)*Z*****	EEx ib IIC T1-T5	IP65 T 182 °C – T 95 °C
T075*****(A, B, D, E, Q, V, W, Y)*Z*****	EEx ib IIC T1-T5	IP65 T 182 °C – T 95 °C
T100*****(A, B, D, E, Q, V, W, Y)*Z*****	EEx ib IIC T1-T5	IP65 T 182 °C – T 95 °C
T150*****(A, B, D, E, Q, V, W, Y)*Z*****	EEx ib IIC T1-T5	IP65 T 182 °C – T 95 °C

Parameter

Type T*** *****R*Z***** and Type T*** *****H*Z*****

Drive circuit (connections 1 - 2 or wires red and brown)

voltage	Ui	DC	11,4	V
current	Ii		2,45	A
power	Pi		2,54	W

effective internal capacitance Ci negligible

Sensor type	Inductance [mH]	Coil resistance at -40 °C [Ω]
T025 *****R*Z*****	4,65	116,2
T025 *****H*Z*****		
T050 *****R*Z*****	4,65	116,2
T050 *****H*Z*****		
T075 *****R*Z*****	9,8	171
T075 *****H*Z*****		
T100 *****R*Z*****	10,5	176,5
T100 *****H*Z*****		
T150 *****R*Z*****	11,6	91
T150 *****H*Z*****		

Pick-Off coil (Terminals 5/9 and 6/8 or wires green/white and blue/grey)

voltage	Ui	DC	30	V
current	Ii		101	mA
power	Pi		750	mW

effective internal capacitance Ci negligible

Sensor type	Inductance [mH]	Coil resistance at -40 °C [Ω]	Serial resistor at -40 °C [Ω]
T025 *****R*Z*****	12,5	206,3	568
T025 *****H*Z*****			
T050 *****R*Z*****	12,5	145,2	568
T050 *****H*Z*****			
T075 *****R*Z*****	13,1	97,8	568
T075 *****H*Z*****			
T100 *****R*Z*****	13,1	97,8	568
T100 *****H*Z*****			
T150 *****R*Z*****	13,1	97,8	568
T150 *****H*Z*****			

temperature circuits (Terminals 5/9 and 6/8 or wires orange, yellow and violet)

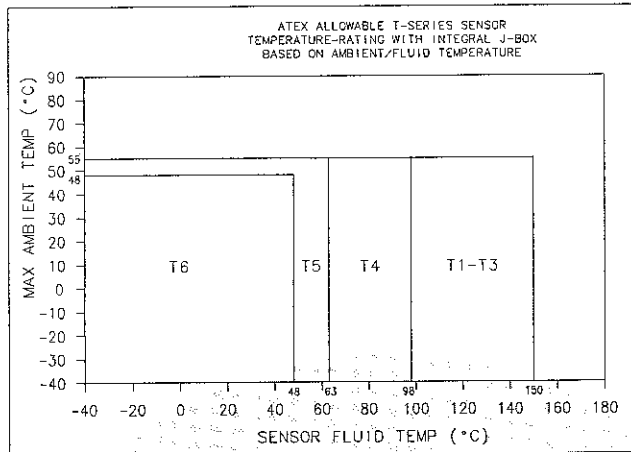
voltage	Ui	DC	30	V
current	Ii		101	mA
power	Pi		750	mW

effective internal capacitance Ci negligible

effective internal inductance Li negligible

Temperature class/ max. surface temperature T

The classification into a temperature class/determination of the maximum surface temperature T depend on the temperature of the medium taking into account the maximum operating temperature of the sensor and are shown in the following graph:



Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

The maximum surface temperature T for dust is as follows: T6: 80 °C, T5: 95 °C, T4: 130 °C, T3 to T1: 182 °C.

ambient temperature range T_a -40 °C bis +55 °C

The use of the sensor at higher ambient temperatures is possible, provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

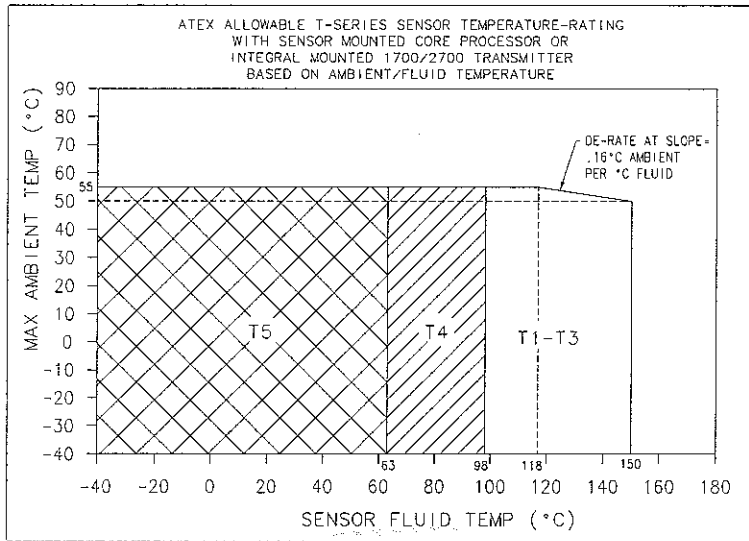
Type T*** ***** (A,B,D,E,Q,V,W,Y)*Z*****

input circuits (terminals 1 - 4)
voltage
current
power
effective internal capacitance
effective internal inductance

U_i	DC	17,3	V
I_i		484	mA
P_i		2,1	W
C_i		2200	pF
L_i		30	µH

Temperature class/ max. surface temperature T

The classification into a temperature class/determination of the maximum surface temperature T depend on the temperature of the medium taking into account the maximum operating temperature of the sensor and are shown in the following graph:



Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

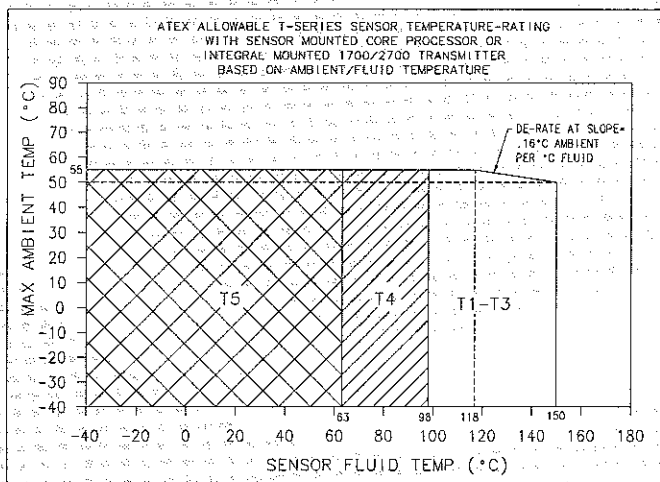
The maximum surface temperature T for dust is as follows: T5: 95 °C, T4: 130 °C, T3 to T1: 182 °C.

ambient temperature range T_a -40 °C bis +55 °C

Type T*** *****(C or F)*Z*****

Electrical parameters see BVS PP 01.2061 EG for the transmitter type *700*****

The classification into a temperature class/determination of the maximum surface temperature T depend on the temperature of the medium taking into account the maximum operating temperature of the sensor and are shown in the following graph:



Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

The maximum surface temperature T for dust is as follows: T5: 95 °C, T4: 130 °C, T3 to T1: 182 °C.

ambient temperature range T_a -40 °C bis +55 °C

Special conditions for safe use

By mounting the sensor type T*** *****(C or F)*Z***** or T*** *****(F or Z)*Z*****, directly to the transmitter *700***** the use of the unit will be modified according to the following:

Transmitter Typ - type	T025 *****(C or F)*Z***** T050 *****(C or F)*Z***** T075 *****(C or F)*Z***** T100 *****(C or F)*Z*****	T150 *****(C oder F)*Z*****
*700*1 ¹⁾ *****	EEx ib IIB+H ₂ T1-T5 IP65 T 182 °C – T 95 °C	EEx ib IIB T1-T5 IP65 T 182 °C – T 95 °C
*700*1 ²⁾ *****	EEx ib IIC T1-T5 IP65 T 182 °C – T 95 °C	EEx ib IIB T1-T5 IP65 T 182 °C – T 95 °C

- 1) At this place the numeral 1 or 2 will be inserted.
 2) At this place the numeral 3, 4 or 5 will be inserted.

Test and assessment report
 BVS PP 01.2062 EG as of 01.04.2005

EXAM BBG Prüf- und Zertifizier GmbH
 Bochum, dated 01. April 2005

Signed: Dr. Jockers

Signed: Dr. Eickhoff

Certification body

Special services unit

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

44809 Bochum, 01.04.2005
 BVS-Hk/Mi A.20040528

EXAM BBG Prüf- und Zertifizier GmbH

Jockers
 Certification body

Eickhoff
 Special services unit



Translation

5th Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

**to the EC-Type Examination Certificate
DMT 01 ATEX E 083 X**

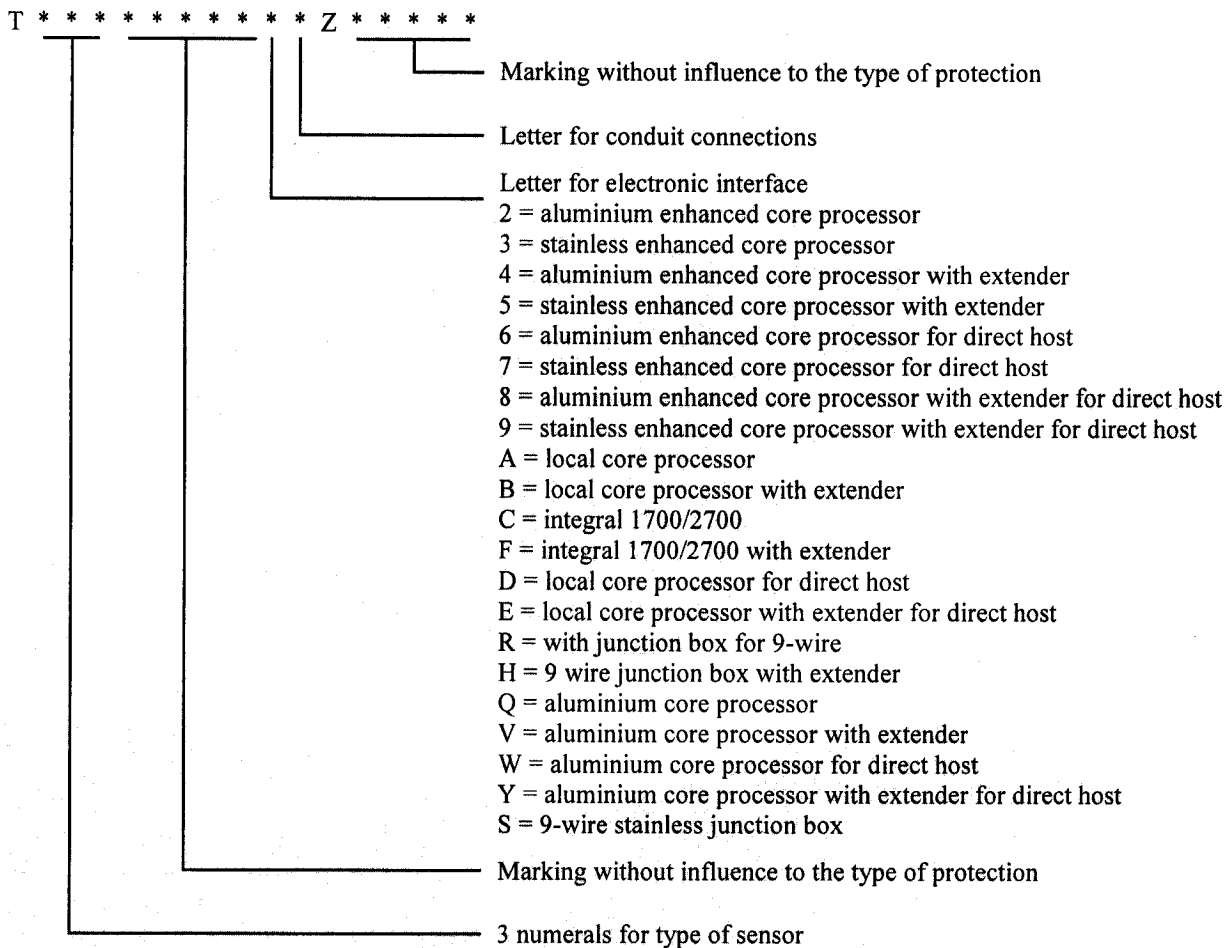
Equipment: Sensor type T*****Z*****

Manufacturer: Micro Motion, Inc.

Address: Boulder, Co. 80301, USA

Description

The sensor can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report. All possible variants are shown in the table below:



The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:
 EN 50014:1997+A1-A2 General requirements
 EN 50020:2002 Intrinsic safety 'i'
 EN 50281-1-1:1998+A1 Dust explosion protection

Marking of the sensors:

Type	Type of protection gas	Type of protection dust
T025***** ¹⁾ *Z*****	II 2G EEx ib IIC T1-T6	II 2D IP65 T ³⁾ °C
T050***** ¹⁾ *Z*****	II 2G EEx ib IIC T1-T6	II 2D IP65 T ³⁾ °C
T075***** ¹⁾ *Z*****	II 2G EEx ib IIC T1-T6	II 2D IP65 T ³⁾ °C
T100***** ¹⁾ *Z*****	II 2G EEx ib IIC T1-T6	II 2D IP65 T ³⁾ °C
T150***** ¹⁾ *Z*****	II 2G EEx ib IIB T1-T6	II 2D IP65 T ³⁾ °C
T025***** ²⁾ *Z*****	II 2G EEx ib IIC T1-T5	II 2D IP65 T ³⁾ °C
T050***** ²⁾ *Z*****	II 2G EEx ib IIC T1-T5	II 2D IP65 T ³⁾ °C
T075***** ²⁾ *Z*****	II 2G EEx ib IIC T1-T5	II 2D IP65 T ³⁾ °C
T100***** ²⁾ *Z*****	II 2G EEx ib IIC T1-T5	II 2D IP65 T ³⁾ °C
T150***** ²⁾ *Z*****	II 2G EEx ib IIB T1-T5	II 2D IP65 T ³⁾ °C

- 1) At this place the letter R, H or S will be inserted.
- 2) At this place the numeral 2, 3, 4, 5, 6, 7, 8 or 9 or the letter A, B, D, E, Q, V, W or Y will be inserted.
- 3) Max. surface temperature T for dust see temperature graphs and manufacturer's instructions. Min. ambient and process temperature for dust is -40 °C.

Special conditions for safe use

By mounting the sensor type T*** *(C,F)*Z***** directly to the transmitter *700***** the use of the unit will be modified according to the following:

Transmitter type	T025 ***** ¹⁾ (C,F)*Z***** T050 ***** ¹⁾ (C,F)*Z***** T075 ***** ¹⁾ (C,F)*Z***** T100 ***** ¹⁾ (C,F)*Z*****	T150 ***** ¹⁾ (C,F)*Z*****
700 ¹⁾ *****	EEx ib IIB+H ₂ T1-T5 IP65 T 182 °C – T 95 °C	EEx ib IIB T1-T5 IP65 T 182 °C – T 95 °C
700 ²⁾ *****	EEx ib IIC T1-T5 IP65 T 182 °C – T 95 °C	EEx ib IIB T1-T5 IP65 T 182 °C – T 95 °C

- 1) At this place the numeral 1 or 2 will be inserted.
- 2) At this place the numeral 3, 4 or 5 will be inserted.

Test and assessment report

BVS PP 01.2062 EG as of 06.09.2006

EXAM BBG Prüf- und Zertifizier GmbH

Bochum, dated 06. September 2006

Signed: Dr. Jockers

Signed: Dr. Wittler

Certification body

Special services unit

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

44809 Bochum, 06. September 2006
BVS-Schu/Kw A 20050740

EXAM BBG Prüf- und Zertifizier GmbH



Certification body



Special services unit

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Emerson Process Management Flow BV
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Ihr Zeichen Henk van Holland
Ihre Nachricht 17.01.2007
Unser Zeichen BVS-Hk/Mi A 20070031
Durchwahl Tel.: (0234) 3696 105 Fax: (0234) 3696 110
e-mail Hauke@bg-exam.de
Datum 24.01.2007

Ladies and Gentlemen,

we added the Revision Report as of 24.01.2007 to the Test and Assessment Report
BVS PP 01.2062 EG.

We confirm, that the Certificate

DMT 01 ATEX E 083 X as of 25.06.2001, last modification of 06.09.2006

is still valid.

Kind regards
BBG Prüf- und Zertifizier GmbH



(Dr. Jockers)



(Dr. Eickhoff)

Enclosures: Revision Report
Invoice

EXAM
BBG Prüf- und Zertifizier
GmbH

Geschäftsführung:
Dr.-Ing. Reinhard Bassier
Dr.-Ing. Günter Levin

Sitz: Bochum
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6th Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate DMT 01 ATEX E 083 X

Equipment: Sensor type T*****
Manufacturer: Micro Motion, Inc.
Address: Boulder, Co. 80301, USA

Description

The sensor can be modified according to the descriptive documents as mentioned in the pertinent Test and Assessment Report.

The ambient temperature limit for types T***** (2-9, A,B,D,E,Q,V,W,Y)*Z***** has been changed to +60 °C, the degrees of protection have been changed from IP65 to IP66 and the parameters for sensors with junction box have been changed.

New versions type T***** (J,U)*****, type T*****T*****, type T150*****6***** and type T150*****Z***** with Construction Identification Code CIC A4 have been added.

Also for testing of the sensors the standards EN 60079-0:2009, EN 60079-11:2007 and EN 61241-11:2006 have been taken as basis, a modified marking is the result.

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

EN 60079-0:2009 General requirements
EN 60079-11:2007 Intrinsic safety 'i'
EN 61241-11:2006 Intrinsic safety Dust 'iD'

The marking of the equipment shall include the following:

 **II 2G Ex ib IIB/IIC T1 – T4/T5/T6 Gb**
II 2D Ex ib IIIC T°C Db
IP66

Marking of the sensors:

Type	Type of protection gas	Type of protection dust	Ambient/fluid temp. gas
T025***** ¹ *Z*****	II 2G Ex ib IIC T1-T6 Gb	II 2D Ex ib IIIC T ³)°C Db IP66	-40 °C up to +55 °C
T050***** ¹ *Z*****	II 2G Ex ib IIC T1-T6 Gb	II 2D Ex ib IIIC T ³)°C Db IP66	-40 °C up to +55 °C
T075***** ¹ *Z*****	II 2G Ex ib IIC T1-T6 Gb	II 2D Ex ib IIIC T ³)°C Db IP66	-40 °C up to +55 °C
T100***** ¹ *Z*****	II 2G Ex ib IIC T1-T6 Gb	II 2D Ex ib IIIC T ³)°C Db IP66	-40 °C up to +55 °C
T150***** ¹ *Z*****	II 2G Ex ib IIB T1-T6 Gb	II 2D Ex ib IIIC T ³)°C Db IP66	-40 °C up to +55 °C
T150***** ¹ *Z***** CIC A4	II 2G Ex ib IIC T1-T6 Gb	II 2D Ex ib IIIC T ³)°C Db IP66	-40 °C up to +55 °C
T150***** ¹ *6*****	II 2G Ex ib IIC T1-T6 Gb	II 2D Ex ib IIIC T ³)°C Db IP66	-40 °C up to +55 °C
T025***** ² *Z*****	II 2G Ex ib IIC T1-T5 Gb	II 2D Ex ib IIIC T ³)°C Db IP66	-40 °C up to +60 °C
T050***** ² *Z*****	II 2G Ex ib IIC T1-T5 Gb	II 2D Ex ib IIIC T ³)°C Db IP66	-40 °C up to +60 °C
T075***** ² *Z*****	II 2G Ex ib IIC T1-T5 Gb	II 2D Ex ib IIIC T ³)°C Db IP66	-40 °C up to +60 °C
T100***** ² *Z*****	II 2G Ex ib IIC T1-T5 Gb	II 2D Ex ib IIIC T ³)°C Db IP66	-40 °C up to +60 °C
T150***** ² *Z*****	II 2G Ex ib IIB T1-T5 Gb	II 2D Ex ib IIIC T ³)°C Db IP66	-40 °C up to +60 °C
T150***** ² *Z***** CIC A4	II 2G Ex ib IIC T1-T5 Gb	II 2D Ex ib IIIC T ³)°C Db IP66	-40 °C up to +60 °C
T150***** ² *6*****	II 2G Ex ib IIC T1-T5 Gb	II 2D Ex ib IIIC T ³)°C Db IP66	-40 °C up to +60 °C

- ¹⁾ At this place the letter R, H, S or T will be inserted.
²⁾ At this place the numeral 2, 3, 4, 5, 6, 7, 8 or 9 or the letter A, B, D, E, Q, V, W or Y will be inserted.
³⁾ Max. surface temperature T for dust see temperature graphs and manufacturer's instructions. Min. ambient and process temperature for dust is -40 °C.

Parameters

1 Type T*****¹(R,H,S,T)¹***** with J-box

1.1 Drive circuit (connections 1 - 2 or red and brown)

Voltage	U _i	DC	11.4	V
Current	I _i		2.45	A
Power	P _i		2.54	W
Effective internal capacitance				negligible

Sensor type	Inductance [mH]	Coil resistance [Ω]	Serial resistor [Ω]	Minimum Ambient/Fluid Temperature [$^{\circ}\text{C}$]
T025***** $(\text{R,H,S,T})\text{*Z*****}$	4.65	116.2	0	-40 $^{\circ}\text{C}$
T050***** $(\text{R,H,S,T})\text{*Z*****}$	4.65	116.2	0	-40 $^{\circ}\text{C}$
T075***** $(\text{R,H,S,T})\text{*Z*****}$	9.8	171	0	-40 $^{\circ}\text{C}$
T100***** $(\text{R,H,S,T})\text{*Z*****}$	10.5	176.5	0	-40 $^{\circ}\text{C}$
T150***** $(\text{R,H,S,T})\text{*Z*****}$	11.6	91	0	-40 $^{\circ}\text{C}$
T150***** $(\text{R,H,S,T})\text{*Z*****}$ CIC A4	11.6	91	94.7	-40 $^{\circ}\text{C}$
T150***** $(\text{R,H,S,T})\text{*6*****}$	11.6	91	94.7	-40 $^{\circ}\text{C}$

1.2 Pick-Off coil (Terminals 5/9 and 6/8 or wires green/white and blue/grey)

Voltage	U _i	DC	21.13	V
Current	I _i		18.05	mA
Power	P _i		45	mW

Effective internal capacitance negligible

Sensor type	Inductance [mH]	Coil resistance [Ω]	Serial resistor [Ω]	Minimum Ambient/Fluid Temperature [$^{\circ}\text{C}$]
T025***** $(\text{R,H,S,T})\text{*Z*****}$	12.5	206.3	568	-40 $^{\circ}\text{C}$
T050***** $(\text{R,H,S,T})\text{*Z*****}$	12.5	145.2	568	-40 $^{\circ}\text{C}$
T075***** $(\text{R,H,S,T})\text{*Z*****}$	13.1	97.8	568	-40 $^{\circ}\text{C}$
T100***** $(\text{R,H,S,T})\text{*Z*****}$	13.1	97.8	568	-40 $^{\circ}\text{C}$
T150***** $(\text{R,H,S,T})\text{*Z*****}$	13.1	97.8	568	-40 $^{\circ}\text{C}$
T150***** $(\text{R,H,S,T})\text{*Z*****}$ CIC A4	13.1	97.8	568	-40 $^{\circ}\text{C}$
T150***** $(\text{R,H,S,T})\text{*6*****}$	13.1	97.8	568	-40 $^{\circ}\text{C}$

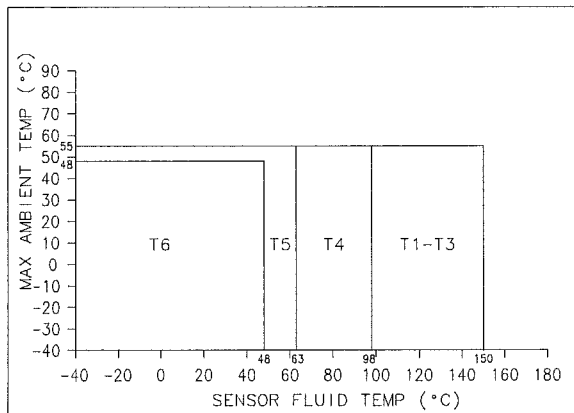
1.3 Temperature circuits (terminals 3, 4 and 7 or wires orange, yellow and violet)

Voltage	U _i	DC	21.13	V
Current	I _i		26	mA
Power	P _i		112	mW
Effective internal capacitance	C _i		negligible	
Effective internal inductance	L _i		negligible	

1.4 Temperature class/ max. surface temperature T

The classification into a temperature class/determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

For types T025***** $(\text{R,H,S,T})\text{*Z*****}$, T050***** $(\text{R,H,S,T})\text{*Z*****}$, T075***** $(\text{R,H,S,T})\text{*Z*****}$, T100***** $(\text{R,H,S,T})\text{*Z*****}$, T150***** $(\text{R,H,S,T})\text{*Z*****}$, T150***** $(\text{R,H,S,T})\text{*Z*****}$ with CIC A4 and T150***** $(\text{R,H,S,T})\text{*6*****}$ with J-box



Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature, The maximum surface temperature T for dust is as follows: T6: 80 °C, T5: 95 °C, T4: 130 °C, T3 to T1: 182 °C.

Ambient temperature range Ta -40 °C up to +55 °C

The use of the sensor at higher ambient temperatures is possible provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

2 Type T***** (2, 3, 4, 5, 6, 7, 8, 9, A, B, D, E, Q, V, W, Y)*****

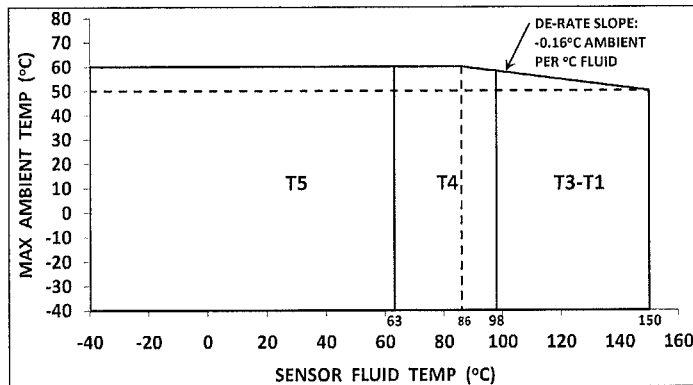
2.1 Input circuits (terminals 1 - 4)

Voltage	Ui	DC	17.3	V
Current	Ii		484	mA
Power	Pi		2.1	W
Effective internal capacitance	Ci		2200	pF
Effective internal inductance	Li		30	µH

2.2. Temperature class/ max. surface temperature T

The classification into a temperature class/determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

For types T025***** (2, 3, 4, 5, 6, 7, 8, 9, A, B, D, E, Q, V, W, Y)*Z*****,
 T050***** (2, 3, 4, 5, 6, 7, 8, 9, A, B, D, E, Q, V, W, Y)*Z*****,
 T075***** (2, 3, 4, 5, 6, 7, 8, 9, A, B, D, E, Q, V, W, Y)*Z*****,
 T100***** (2, 3, 4, 5, 6, 7, 8, 9, A, B, D, E, Q, V, W, Y)*Z*****,
 T150***** (2, 3, 4, 5, 6, 7, 8, 9, A, B, D, E, Q, V, W, Y)*Z*****,
 T150***** (2, 3, 4, 5, 6, 7, 8, 9, A, B, D, E, Q, V, W, Y)*Z***** with CIC A4 and
 T150***** (2, 3, 4, 5, 6, 7, 8, 9, A, B, D, E, Q, V, W, Y)*6*****



Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature, The maximum surface temperature T for dust is as follows: T5: 95 °C, T4: 130 °C, T3 to T1: 182 °C.

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

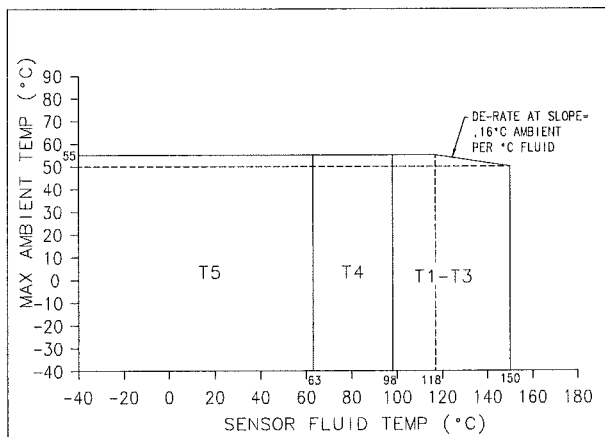
3 Type T*** (C, F)*Z*****

3,1 Electrical parameters see DMT 01 ATEX E 082 X for the transmitter type *700*****

3,2 Temperature class/ max, surface temperature T

The classification into a temperature class/determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graphs:

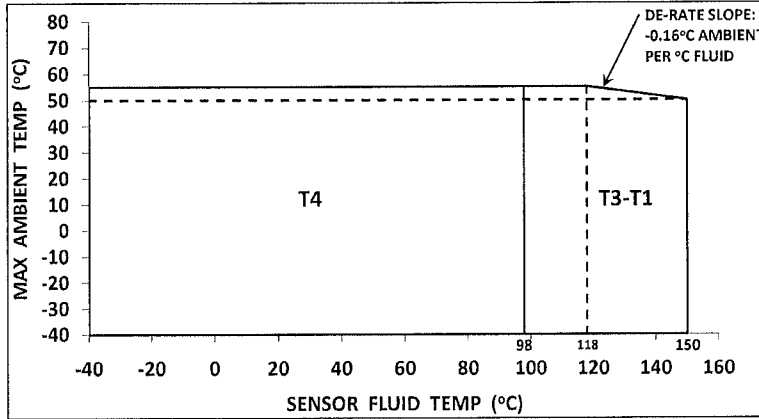
For types T025*** (C,F)*Z*****, T050*** (C,F)*Z*****, T075*** (C,F)*Z*****, T100*** (C,F)*Z*****, T150*** (C,F)*Z*****, T150*** (C,F)*Z***** with CIC A4 and T150*** (C,F)*6*****



Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature, The maximum surface temperature T for dust is as follows: T5: 95 °C, T4: 130 °C, T3 to T1: 182 °C.

Ambient temperature range T_a -40 °C up to +55 °C

When used with 1700/2700 Transmitter with Wireless HART Output Option Code "4" (*700*1*4*****):



Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range T_a -40 °C up to +55 °C

4 Type T******(J,U)******

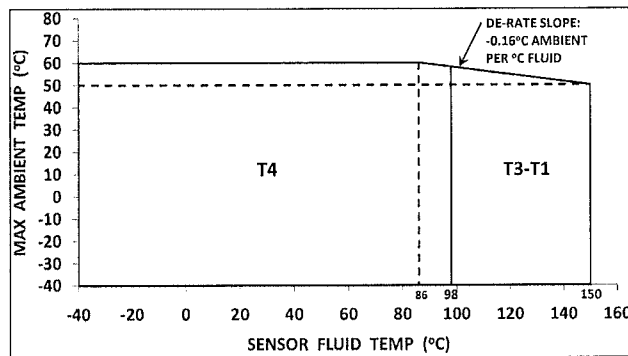
4.1 Input circuits (terminals 1 - 2)

Voltage	U_i	DC	28	V
Current	I_i		120	mA
Power	P_i		0.84	W
Effective internal capacitance	C_i		2200	pF
Effective internal inductance	L_i		45	μ H

4.2 Temperature class/ max. surface temperature T

The classification into a temperature class/determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

For types T025******(J,U)**Z*****, T050******(J,U)**Z*****, T075******(J,U)**Z*****, T100******(J,U)**Z*****, T150******(J,U)**Z*****, T150******(J,U)**6***** with CIC A4 and T150******(J,U)**6*****



Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature, The maximum surface temperature T for dust is as follows: T4: 130 °C, T3 to T1: 182 °C.

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

Special conditions for safe use

- 1 By mounting the sensor type T*** *(C, F)*Z**** directly to the transmitter *700***** the use of the unit will be modified according to the following:

	Sensor type	
	T025 *(C,F)*Z**** T050 *(C,F)*Z**** T075 *(C,F)*Z**** T100 *(C,F)*Z**** T150 *(C,F)*Z**** CIC A4 T150 *(C,F)*6****	T150 *(C,F)*Z****
Transmitter type *700*1 ¹⁾ *****	Ex ib IIB+H ₂ T1-T5 Ex tD A21 IP66 T ³⁾ °C	Ex ib IIB T1-T5 Ex tD A21 IP66 T ³⁾ °C
Transmitter type *700*1 ²⁾ *****	Ex ib IIC T1-T5 Ex tD A21 IP66 T ³⁾ °C	Ex ib IIB T1-T5 Ex tD A21 IP66 T ³⁾ °C
Transmitter type *700*1 ¹⁾ 4*****	Ex ib IIB+H ₂ T1-T4	Ex ib IIB T1-T4
Transmitter type *700*1 ²⁾ 4*****	Ex ib IIC T1-T4	Ex ib IIB T1-T4

- 1) At this place the numeral 1 or 2 will be inserted.
 2) At this place the numeral 3, 4 or 5 will be inserted.
 3) Maximum surface temperature T for dust, see temperature graphs and manufacturer's instructions.

- 2 By mounting the sensor directly to the 2200S transmitter the use of the unit will be modified according to the following table:

	Sensor type	
	T025 *(J,U)*Z**** T075 *(J,U)*Z**** T100 *(J,U)*Z**** T150 *(J,U)*Z**** CIC A4 T150 *(J,U)*6****	T150 *(J,U)*Z****
Transmitter type 2200S*(H or K)*1*Z****	Ex ib IIC T1-T4 Ex ibD 21 T ³⁾ °C	Ex ib IIB T1-T4 Ex ibD 21 T70°C
Transmitter type 2200S*(5 or 6)*1*Z****	Ex ib IIC T1-T4	Ex ib IIB T1-T4

- 3) Maximum surface temperature T for dust for types T***** see temperature graphs and the manufacturer's instructions.

Test and assessment report

BVS PP 01.2062 EG as of 07.12.2010

DEKRA EXAM GmbH

Bochum, dated 07 December 2010

Signed: Hans Christian Simanski

Signed: Dr. Franz Eickhoff

Certification body

Special services unit

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

44809 Bochum, 07.12.2010
BVS-Schu/Her A 20091046

DEKRA EXAM GmbH



Certification body



Special services unit