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 06.0005X** Issue No.: **0**

Status: **Current**

Date of Issue: **2006-07-04** Page **1** of **3**

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

Electrical Apparatus: **Sensor type F*** *******I*****, H*** *******I*****, R*** *******I*****, CNG050*******I****
Optional accessory:

Type of Protection: **Intrinsic safety**

Marking: **Ex ib IIB/IIC T5/T6**

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

Position: Head of Certification Body

Signature:
(for printed version)

Date: 04.07.2006

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:

EXAM BBG Prüf- und Zertifizier GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

EXAM
BBG Prüf- und Zertifizier GmbH

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 06.0005X**

Date of Issue: **2006-07-04** Issue No.: **0**

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

Manufacturing location(s):

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

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

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'rs 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 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-11 : 1999 Edition: 4	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i'

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

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

DE/BVS/ExTR06.0037/00

Quality Assessment Report:

CA/CSA/QAR06.0002/00
CA/CSA/QAR06.0003/00

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 06.0005X**

Date of Issue: **2006-07-04** Issue No.: **0**

Schedule

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

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 (F*** *****(R, H, S)*I*****, H*** *****(R, H, S)*I*****, R*** *****(R, H, S)*I***** and CNG050 *****(R, H, S)*I****) an enclosure with an integral mounted signal processing device type 700 (IECEx BVS 04. 0002U) can be used; this variation gets the denomination type F*** *****(A, B)*I*****, H*** *****(A, B)*I*****, R*** *****(A, B)*I***** and CNG050 *****(A, B)*I**** for a stainless steel enclosure and F*** ***** (Q, V)*I*****, H*** ***** (Q, V)*I*****, R*** ***** (Q, V)*I***** and CNG050 ***** (Q, V)*I**** for an aluminium enclosure.
When used with an integral mounted enhanced signal processing device type 800 (IECEx BVS 05.0010U); the variation gets the denomination type F*** *****(3, 5)*I*****, H*** *****(3, 5)*I*****, R*** *****(3, 5)*I***** and CNG050 *****(3, 5)*I**** for a stainless steel enclosure and F*** *****(2, 4)*I*****, H*** *****(2, 4)*I*****, R*** *****(2 or 4)*I*****, CNG050 *****(2, 4)*I**** for an aluminium enclosure.
The high temperature version F*** (A, B, C, E)******I***** can be executed with a junction box, or transmitter, or core processor, or enhanced core processor; this variation has therefore always the denomination F*** (A, B, C, E)******I*****.

Alternatively a transmitter type *700********** (IECEx BVS 04.0006X) can be mounted directly to the junction box; this variation gets the denomination
type F*** *****(C, F)*I*****, H*** *****(C, F)*I*****, R*** *****(C, F)*I***** and CNG050 *****(C, F)*I****.

CONDITIONS OF CERTIFICATION: YES as shown below:

Special conditions for safe use

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

	F025 *****(C, F)*I***** F050 *****(C, F)*I***** F100 *****(C, F)*I***** F200 *****(C, F)*I***** H025 *****(C, F)*I***** H050 *****(C, F)*I***** H100 *****(C, F)*I***** H200 *****(C, F)*I***** R025 *****(C, F)*I***** R050 *****(C, F)*I***** R100 *****(C, F)*I***** R200 *****(C, F)*I***** CNG050 *****(C, F)*I**** F025(A, B, C, E) ****(C, F)*I***** F050(A, B, C, E) ****(C, F)*I***** F100(A, B, C, E) ****(C, F)*I*****	F300 *****(C, F)*I***** F300(A, B, C, E) ****(C, F)*I***** H300 *****(C, F)*I*****
Transmitter type *700*1 [1)]*******	Ex ib IIB+H2 T1-5	Ex ib IIB T1-5
Transmitter type *700*1 [2)]*******	Ex ib IIC T1-5	Ex ib IIB T1-5

1) at this place the numeral 1 or 2 can be inserted
2) at this place the numeral 3, 4 or 5 can be inserted

Annexe: Annex_IECEx_BVS06.0005X.pdf

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 06.0005X issue No.:1	Certificate history: Issue No. 1 (2007-8-1) Issue No. 0 (2006-7-4)
Status:	**Current**	
Date of Issue:	**2007-08-01**	Page 1 of 4
Applicant:	**Micro Motion, Inc.** Boulder, Co. 80301 **United States of America**	
Electrical Apparatus: *Optional accessory:*	**Sensor type F*** *******I*****, H*** *******I*****, R*** *******I*****, CNG050*******I****	
Type of Protection:	**Intrinsic safety**	
Marking:	**Ex ib IIB/IIC T5/T6**	
Approved for issue on behalf of the IECEx Certification Body:	Dr. R. Jockers	
Position:	Head of Certification Body	
Signature: *(for printed version)*		
Date:	01.08.2007	

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 06.0005X

Date of Issue: **2007-08-01** Issue No.: **1**

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

Manufacturing location(s):

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

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

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'rs 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 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-11 : 2006 Edition: 5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

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

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

DE/BVS/ExTR06.0037/00
DE/BVS/ExTR06.0037/01

Quality Assessment Report:
NO/DNV/QAR07.0002/00
NO/DNV/QAR07.0003/00
NO/DNV/QAR07.0004/00

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 06.0005X

Date of Issue: **2007-08-01** Issue No.: **1**

Schedule

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

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 (F*** *****(R, H, S)*I*****, H*** *****(R, H, S)*I*****, R*** *****(R, H, S)*I***** and CNG050 *****(R, H, S)*I****) an enclosure with an integral mounted signal processing device type 700 (IECEx BVS 04. 0002U) can be used; this variation gets the denomination type F*** *****(A, B)*I*****, H*** *****(A, B)*I*****, R*** *****(A, B)*I***** and CNG050 *****(A, B)*I**** for a stainless steel enclosure and F*** ***** (Q, V)*I*****, H*** ***** (Q, V)*I*****, R*** ***** (Q, V)*I***** and CNG050 ***** (Q, V)*I**** for an aluminium enclosure.
When used with an integral mounted enhanced signal processing device type 800 (IECEx BVS 05.0010U); the variation gets the denomination type F*** *****(3, 5)*I*****, H*** *****(3, 5)*I*****, R*** *****(3, 5)*I***** and CNG050 *****(3, 5)*I**** for a stainless steel enclosure and F*** *****(2, 4)*I*****, H*** *****(2, 4)*I*****, R*** *****(2 or 4)*I*****, CNG050 *****(2, 4)*I**** for an aluminium enclosure.
The high temperature version F*** (A, B, C, E)******I***** can be executed with a junction box, or transmitter, or core processor, or enhanced core processor; this variation has therefore always the denomination F*** (A, B, C, E)******I*****.

Alternatively a transmitter type *700********* (IECEx BVS 04.0006X) can be mounted directly to the junction box; this variation gets the denomination
type F*** *****(C, F)*I*****, H*** *****(C, F)*I*****, R*** *****(C, F)*I***** and CNG050 *****(C, F)*I****.

CONDITIONS OF CERTIFICATION: YES as shown below:

Special conditions for safe use

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

	F025 *****(C, F)*I***** F050 *****(C, F)*I***** F100 *****(C, F)*I***** F200 *****(C, F)*I***** H025 *****(C, F)*I***** H050 *****(C, F)*I***** H100 *****(C, F)*I***** H200 *****(C, F)*I***** R025 *****(C, F)*I***** R050 *****(C, F)*I***** R100 *****(C, F)*I***** R200 *****(C, F)*I***** CNG050 *****(C, F)*I**** F025(A, B, C, E) ****(C, F)*I***** F050(A, B, C, E) ****(C, F)*I***** F100(A, B, C, E) ****(C, F)*I*****	F300 *****(C, F)*I***** F300(A, B, C, E) ****(C, F)*I***** H300 *****(C, F)*I*****
Transmitter type *700*1[1)]*******	Ex ib IIB+H2 T1-5	Ex ib IIB T1-5
Transmitter type *700*1[2)]*******	Ex ib IIC T1-5	Ex ib IIB T1-5

1) at this place the numeral 1 or 2 can be inserted
2) at this place the numeral 3, 4 or 5 can be inserted

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 06.0005X

Date of Issue: **2007-08-01** Issue No.: **1**

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

Issue 1

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

The manufacturer Micro Motion Inc., Boulder, United States of America changed the EXCB for quality supervision. Responsible is now DNV for all production sites.

The high temperature versions F*** (A,B,C,E)******I***** can be manufactured with other coils and get therefore the additional marking with C.I.C. A1.

Also for testing of the sensors the new standard versions of IEC 60079-* have been taken as basis.

Additional information see Annex.

Annexe: Annex_IECEx_BVS06.0005X.pdf, Annex_IECEx_BVS_06.0005X_N1.pdf

IECEx Certificate of Conformity

EXAM
BBG Prüf- und Zertifizier GmbH

Certificate No.: **IECEx BVS 06.0005 X**
Annex

Subject and Type

Sensor type F*** *******I*****
H*** *******I*****
R*** *******I*****
CNG050*******I****

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

type F * * * * * * * * * * | * * * * *
H * * * * * * * * * * | * * * * *
R * * * * * * * * * * | * * * * *
CNG 0 5 0 * * * * * * * | * * * *

- Marking without influence to the type of protection
- Letter for conduit connections
- Letter for electronic interface
  - 2 = aluminum enhanced core processor
  - 3 = stainless enhanced core processor
  - 4 = aluminum enhanced core processor with extender
  - 5 = stainless enhanced core processor with extender
  - A = local core processor
  - B = local core processor with extender
  - C = integral 1700/2700
  - F = integral 1700/2700 with extender
  - R = with junction box for 9-wire
  - H = 9 wire junction box with extender
  - Q = aluminium core processor
  - V = aluminium core processor with extender
  - S = 9-wire stainless junction box
- Marking without influence to the type of protection
- A = High Temp. Stainless Steel Tube 350°C
  B = High Temp. HY Tube 350°C
  C = High Temp. Stainless Steel Tube 427°C
  E = High Temp. HY Tube 427°C
  Other marking without influence to the type of protection
- 3 numerals for type of sensor

Certificate No.: **IECEx BVS 06.0005 X**
Annex
Page 2 of 15

Parameters

1 Type F*** *****(R, H, S)*I***** (Except F*** (A, B, C, E)****(R, H, S)*I*****)
H*** *****(R, H, S)*I*****
R*** *****(R, H, S)*I*****
CNG050 *****(R, H, S)*I****

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

voltage	Ui	DC	10,5	V
current	Ii		2,45	A
power	Pi		2,54	W

effective internal capacitance Ci negligible

sensor type	inductance [mH]	coil resistance [Ω]	series resistor [Ω]	minimum Ambient/Fluid Temp [°C]
F025 *****(R, H, S)*I***** H025 *****(R, H, S)*I***** R025 *****(R, H, S)*I*****	7,5	77,27	568,83	-83 °C
F050 *****(R, H, S)*I***** H050 *****(R, H, S)*I***** R050 *****(R, H, S)*I***** CNG050 *****(R, H, S)*I****	7,5	77,27	568,83	-83 °C
F100 *****(R, H, S)*I***** H100 *****(R, H, S)*I***** R100 *****(R, H, S)*I*****	7,5	77,27	71,1	-83 °C
F200 *****(R, H, S)*I***** H200 *****(R, H, S)*I***** R200 *****(R, H, S)*I*****	9,4	18,43	148,03	-138 °C
F300 *****(R, H, S)*I***** H300 *****(R, H, S)*I*****	11,75	83,5	7,9	-40 °C

1.2 Pick-off circuit (connections 5 , 9 and 6, 8 or 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 [Ω]	series resistor [Ω]	minimum Ambient/Fluid Temp [°C]
F025 *****(R, H, S)*I***** H025 *****(R, H, S)*I***** R025 *****(R, H, S)*I*****	7,5	77,27	0 - 568,83	-83 °C
F050 *****(R, H, S)*I***** H050 *****(R, H, S)*I***** R050 *****(R, H, S)*I***** CNG050 *****(R, H, S)*I****	7,5	77,27	0 - 568,83	-83 °C

Certificate No.: **IECEx BVS 06.0005 X**

Annex

sensor type	inductance [mH]	coil resistance [Ω]	series resistor [Ω]	minimum Ambient/Fluid Temp [°C]
F100 *****(R, H, S)*I***** H100 *****(R, H, S)*I***** R100 *****(R, H, S)*I*****	7,5	77,27	0 - 568,83	-83 °C
F200 *****(R, H, S)*I***** H200 *****(R, H, S)*I***** R200 *****(R, H, S)*I*****	12,4	63,21	0 - 568,19	-138 °C
F300 *****(R, H, S)*I***** H300 *****(R, H, S)*I*****	12,4	128,4	0 - 569,3	-40 °C

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

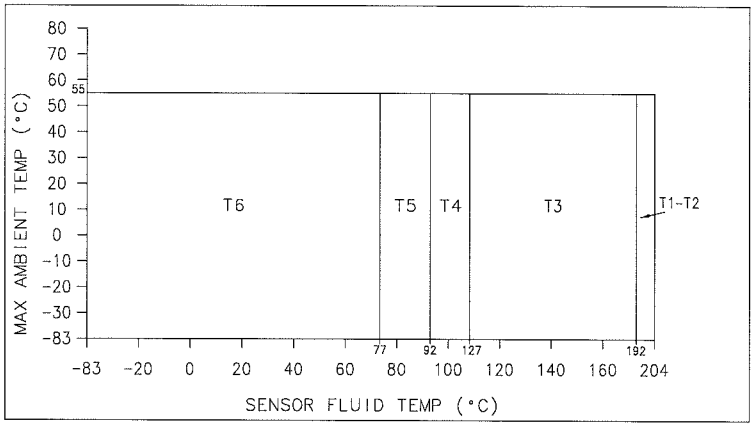
voltage	Ui	DC	30	V
current	Ii		101	mA
power	Pi		750	mW
effective internal capacitance	Ci		negligible	
effective internal inductance	Li		negligible	

1.4 Thermal data

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 graphs:

1.4.1 For F025, F050, H025, H050, R025, R050 and CNG050 Sensors with J-Box connected to MVD Transmitters (i.e. 1700/2700)

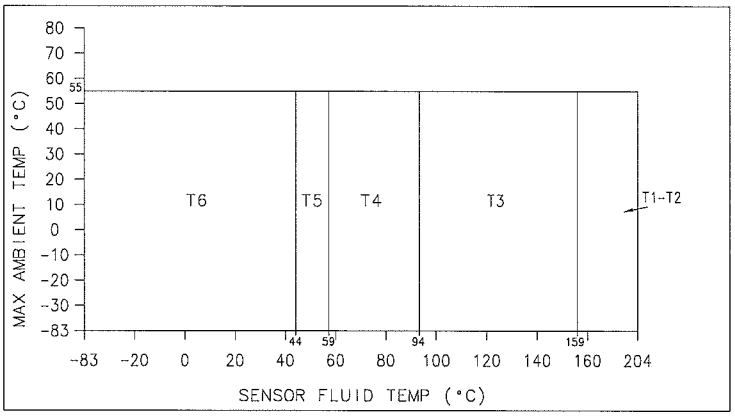


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta -83 °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.

1.4.2 For F100, H100 and R100 Sensor with J-Box connected to MVD Transmitters (i.e. 1700/2700)

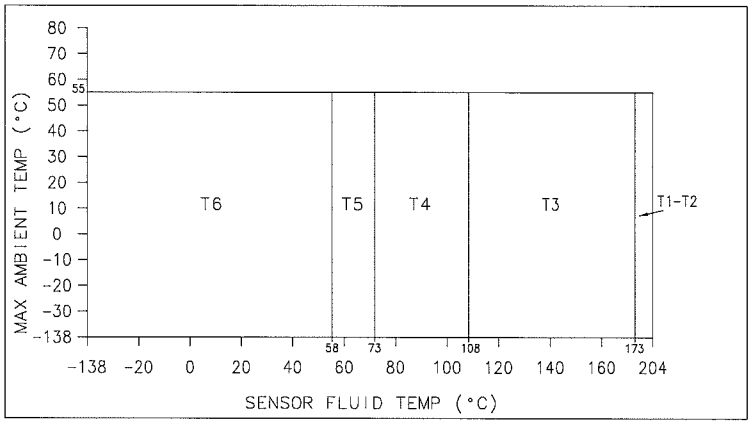


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta -83 °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.

1.4.3 For F200, H200 and R200 Sensors with J-Box connected to MVD Transmitters (i.e. 1700/2700)

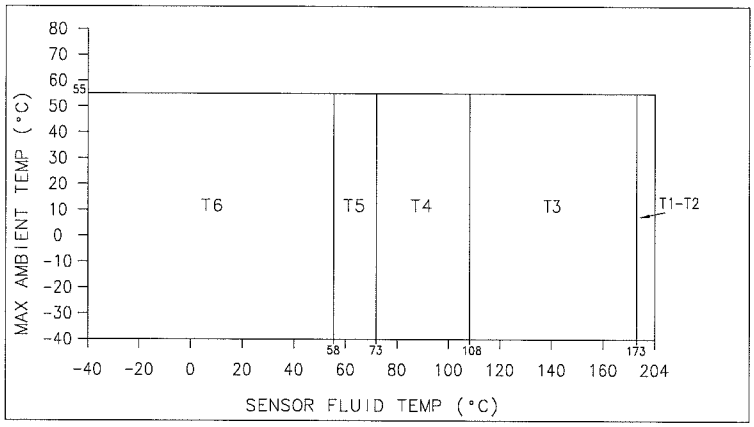


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range	Ta	-138 °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.

1.4.4 For F300 and H300 Sensors with J-Box connected to MVD Transmitters (i.e. 1700/2700)



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

Ambient temperature range	Ta	-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 F***(A, B, C, E)****(R, H, S)*I**** with J-box

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

voltage	Ui	DC	10,5 V
current	Ii		2,45 A
power	Pi		2,54 W
effective internal capacitance	Ci	negligible	

sensor type	inductance [mH]	coil resistance [Ω]	series resistor [Ω]	minimum Ambient/Fluid Temp [°C]
F025 (A, B, C, E)****(R, H, S)*I*****	1,8	19,8	55,3	-50 °C
F050 (A, B, C, E)****(R, H, S)*I*****	1,8	19,8	55,3	-50 °C
F100 (A, B, C, E)****(R, H, S)*I*****	1,8	19,8	55,3	-50 °C
F300 (A, B, C, E)****(R, H, S)*I*****	7,75	54,3	19,8	-50 °C

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

voltage	Ui	DC	30	V
current	Ii		101	mA
power	Pi		750	mW
effective internal capacitance	Ci	negligible		

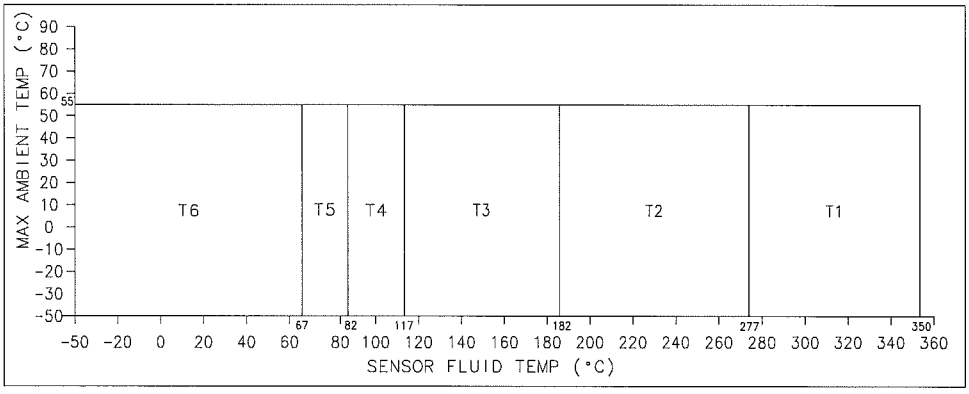
sensor type	inductance [mH]	coil resistance [Ω]	series resistor [Ω]	minimum Ambient/Fluid Temp [°C]
F025 (A, B, C, E)****(R, H ,S)*I*****	1,8	19,8	0 to 569,2	-50 °C
F050 (A, B, C, E)****(R, H, S)*I*****	1,8	19,8	0 to 569,2	-50 °C
F100 (A, B, C, E)****(R, H, S)*I*****	1,8	19,8	0 to 569,2	-50 °C
F300 (A, B, C, E)****(R, H, S)*I*****	6,5	41,1	0 to 569,2	-50 °C

2.3 Temperature circuit (connections 3, 4 and 7 or 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		

2.4 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 graphs:

2.4.1 For F025(A, B), F050(A, B), F100(A, B) and F300(A, B) Sensors with Integral J-Box connected to MVD Transmitters

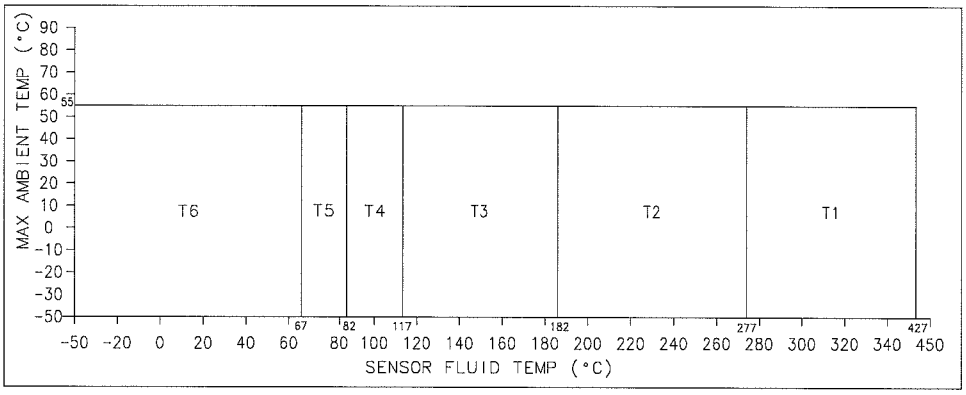


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta –50 °C 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.

2.4.2 For F025(C, E), F050(C, E), F100(C, E) and CMF300(C, E) Sensors with Integral J-Box connected to MVD Transmitters



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

Ambient temperature range. Ta –50 °C 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.

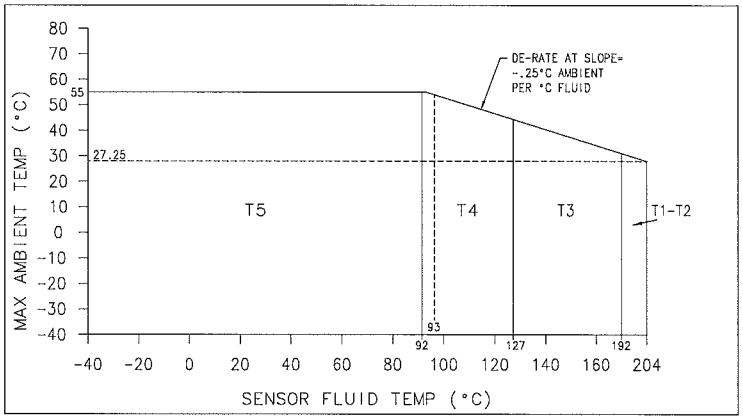
3 Type F*** *****(2-5, A, B, Q, V)*I*****
H*** *****(2-5, A, B, Q, V)*I*****
R*** *****(2-5, A, B, Q, V)*I*****
CNG050 *****(2-5, A, B, Q, V)*I****

3.1 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

3.2 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: (Except F*** (A, B, C, E)****(2-5, A, B, Q, V)*I*****)

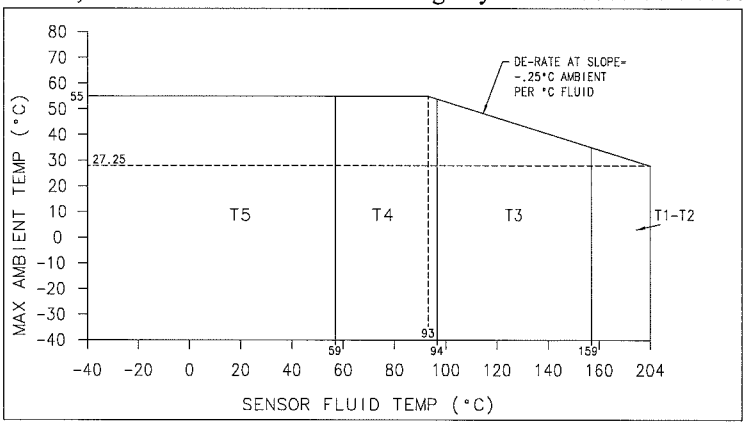
3.2.1 For F025, F050, H025, H050, R025, R050 and CNG050 Sensors with integrally mounted 700 Core or 800 Core



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

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

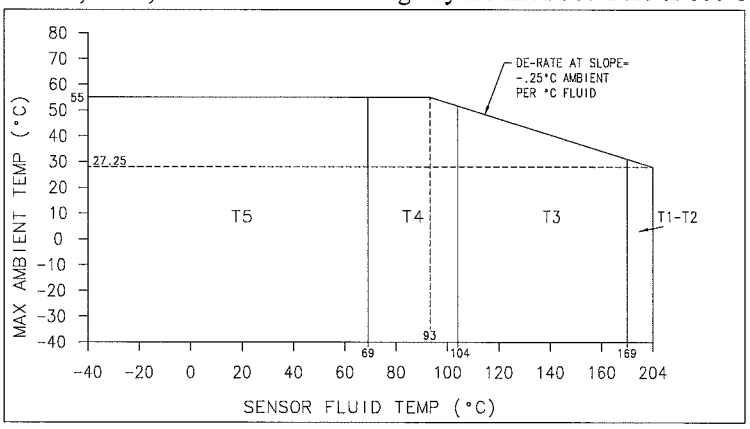
3.2.2 For F100, H100 and R100 Sensors with integrally mounted 700 Core or 800 Core



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

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

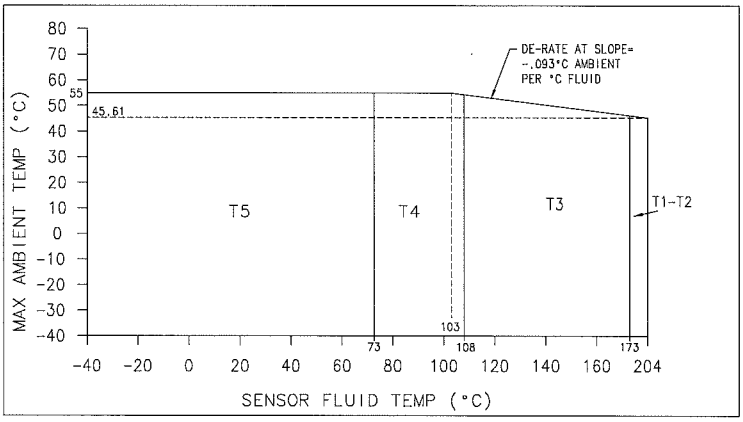
3.2.3 For F200, H200, R200 Sensors with integrally mounted 700 Core or 800 Core



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

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

3.2.4 For F300 and H300 Sensors with integrally mounted 700 Core or 800 Core

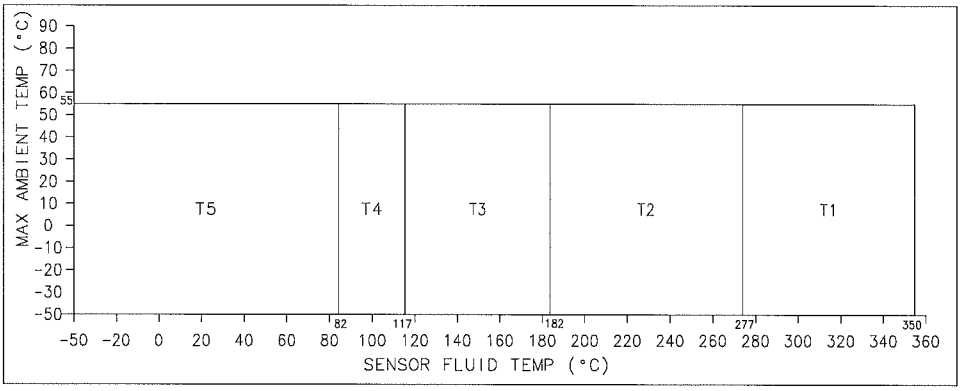


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

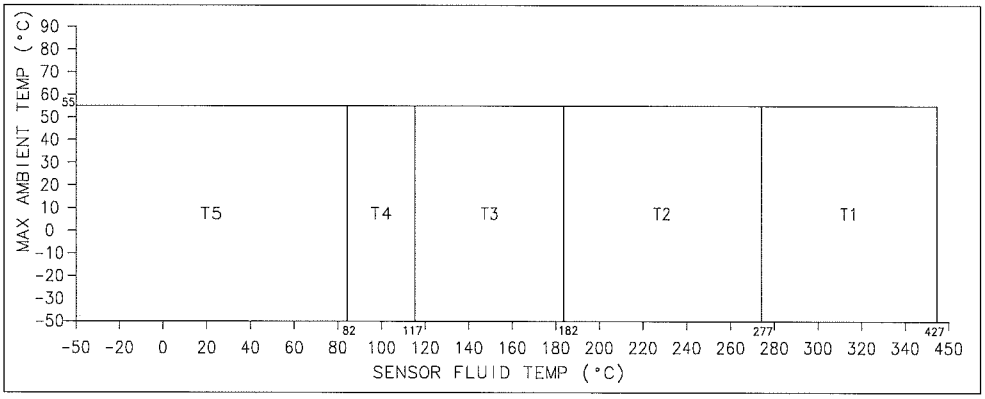
3.3 Type F*** (A, B, C, E)****(2-5, A, B, Q, V)*I*****
The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

For F025(A or B), F050(A or B), F100(A or B) and F300(A or B) Sensors with Integral 700 Core or 800 Core



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

For F025(C or E), F050(C or E), F100(C or E) and F300(C or E) Sensors with Integral 700 Core or 800 Core



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

Ambient temperature range.	Ta	–50 °C to + 55 °C

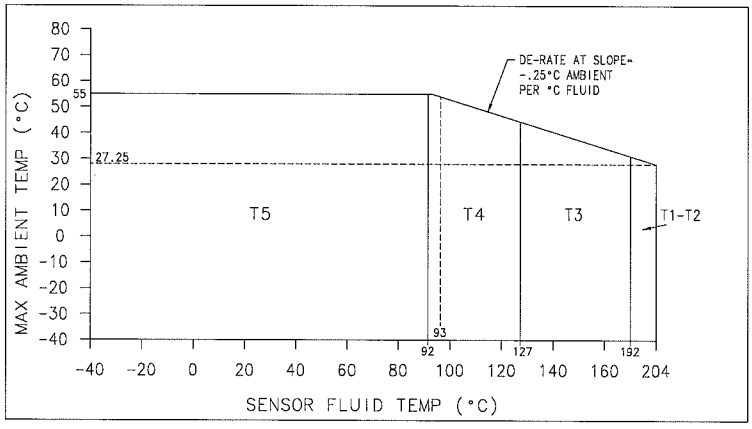
Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, the use of the sensor at an ambient temperature higher than +55°C is possible, provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

4 Type F*** *****(C, F)*I*****
H*** *****(C or F)*I*****
R*** *****(C or F)*I*****
CNG050 *****(C or F)*I****

4.1 Electrical parameters see IECEx BVS 04.0006X for the transmitter type *700**********

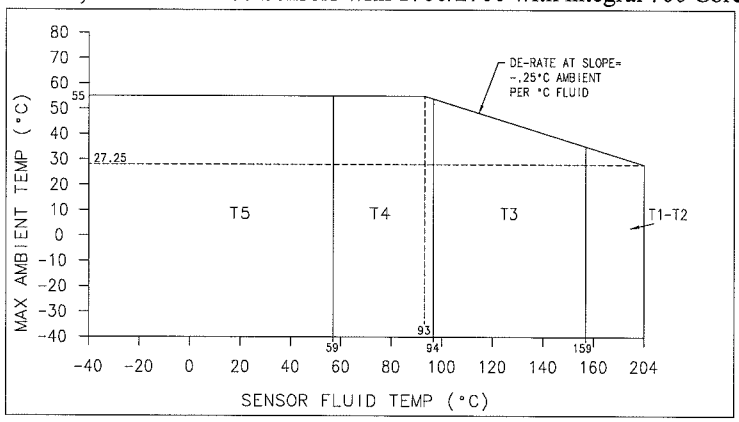
4.2 The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph: (Except Type F*** (A, B, C, E)****(C, F)*I*****)

4.2.1 For F025, F050, H025, H050, R025, R050 and CNG050 Sensors with 1700/2700 with integral 700 Core



Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.
Ambient temperature range Ta -40 °C up to +55 °C

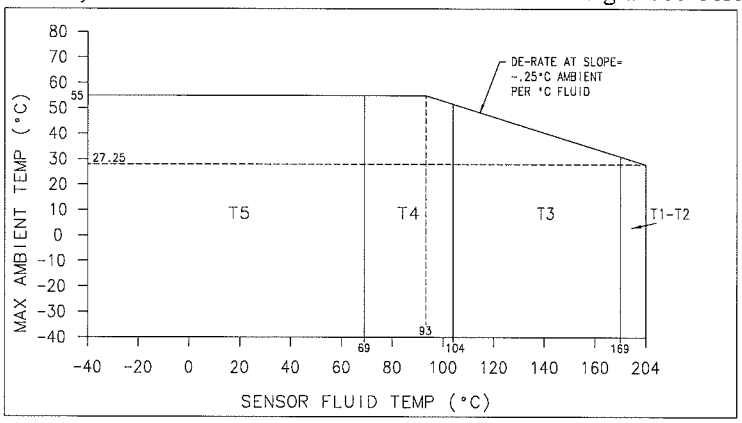
4.2.2 For F100, H100 and R100 Sensors with 1700/2700 with integral 700 Core



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

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

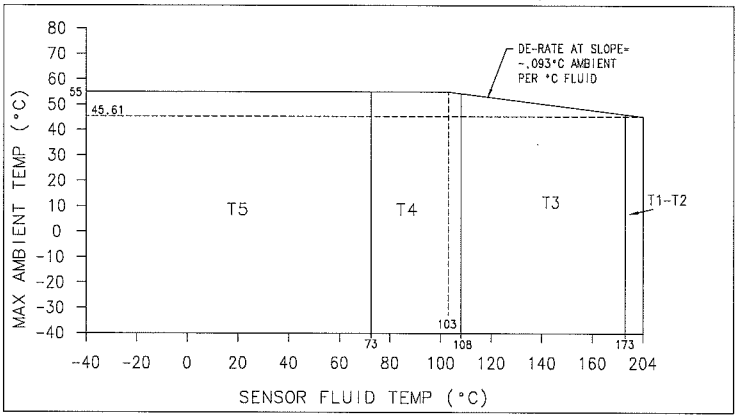
4.2.3 For F200, H200 and R200 Sensors with 1700/2700 with integral 700 Core



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

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

4.2.4 For F300 and H300 Sensors with 1700/2700 with integral 700 Core

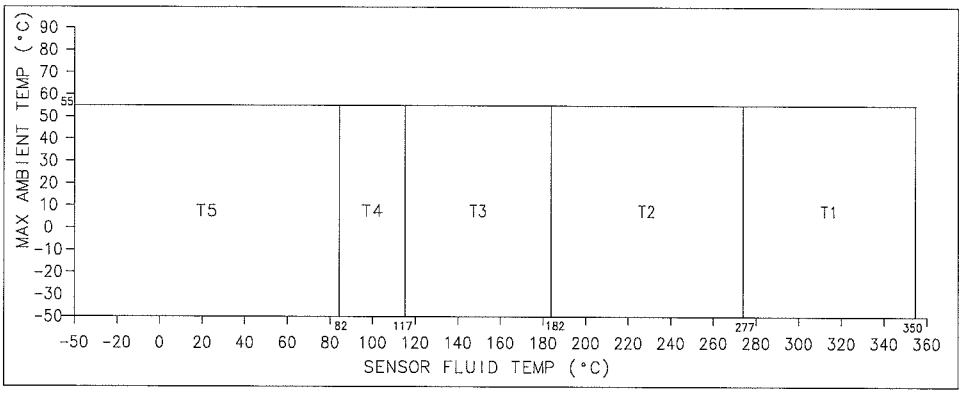


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

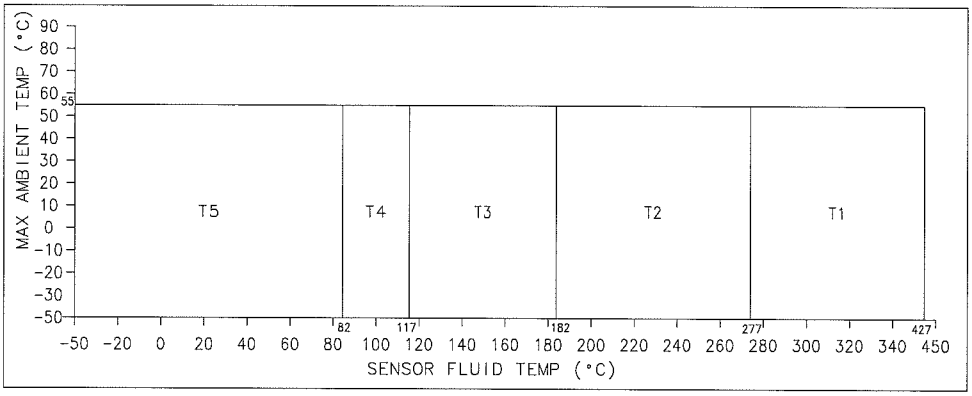
4.3 Type F*** (A, B, C, E)****(C, F)*I*****
The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

For F025(A, B), F050(A, B), F100(A, B) and F300(A, B) Sensors with 1700/2700 with Integral 700 Core



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

For F025(C, E), F050(C, E), F100(C, E) and F300(C, E) Sensors with 1700/2700 with Integral 700 Core



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

Ambient temperature range	Ta	-50 °C up to +55 °C

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, 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.

Marking

- 40°C ≤ Ta ≤ +55 °C

Type	type of protection
F025 *****(R, H, S)*I***** H025 *****(R, H, S)*I***** R025 *****(R, H, S)*I*****	Ex ib IIC T1-T6
F050 *****(R, H, S)*I***** H050 *****(R, H, S)*I***** R050 *****(R, H, S)*I***** CNG050 *****(R, H, S)*I****	Ex ib IIC T1-T6
F100 *****(R, H, S)*I***** H100 *****(R, H, S)*I***** R100 *****(R, H, S)*I*****	Ex ib IIC T1-T6
F200 *****(R, H, S)*I***** H200 *****(R, H, S)*I***** R200 *****(R, H, S)*I*****	Ex ib IIC T1-T6
F300 *****(R, H, S)*I***** H300 *****(R, H, S)*I*****	Ex ib IIB T1-T6
F025 *****(2-5, A, B, Q, V)*I***** H025 *****(2-5, A, B, Q, V)*I***** R025 *****(2-5, A, B, Q, V)*I*****	Ex ib IIC T1-T5
F050 *****(2-5, A, B, Q, V)*I***** H050 *****(2-5, A, B, Q, V)*I***** R050 *****(2-5, A, B, Q, V)*I***** CNG050 *****(2-5, A, B, Q, V)*I****	Ex ib IIC T1-T5
F100 *****(2-5, A, B, Q, V)*I***** H100 *****(2-5, A, B, Q, V)*I***** R100 *****(2-5, A, B, Q, V)*I*****	EEx ib IIC T1-T5
F200 *****(2-5, A, B, Q, V)*I***** H200 *****(2-5, A, B, Q, V)*I***** R200 *****(2-5, A, B, Q, V)*I*****	Ex ib IIC T1-T5
F300 *****(2-5, A, B, Q, V)*I***** H300 *****(2-5, A, B, Q, V)*I*****	Ex ib IIB T1-T5

- 50°C ≤ Ta ≤ +55 °C

Type	type of protection
F025 (A, B, C, E)****(2-5, A, B, Q, V)*I *****	Ex ib IIC T1-T5
F050 (A, B, C, E)****(2-5, A, B, Q, V)*I *****	Ex ib IIC T1-T5
F100 (A, B, C, E)****(2-5, A, B, Q, V)*I *****	Ex ib IIC T1-T5
F300 (A, B, C, E)****(2-5, A, B, Q, V)*I *****	Ex ib IIB T1-T5

IECEx Certificate of Conformity

EXAM BBG Prüf- und Zertifizier GmbH

Certificate No.: **IECEx BVS 06.0005 X**

Annex

For Sensors with J-Box connected to MVD Transmitter (1700/2700)

Type	type of protection	Ambient temperature range
F025 *****(R, H,S)*I***** H025 *****(R, H,S)*I***** R025 *****(R, H,S)*I*****	Ex ib IIC T1-6	- 83°C ≤ Ta ≤ +55 °C
F050 *****(R, H, S)*I***** H050 *****(R, H, S)*I***** R050 *****(R, H, S)*I***** CNG050 *****(R, H, S)*I****	Ex ib IIC T1-6	- 83°C ≤ Ta ≤ +55 °C
F100 *****(R, H, S)*I***** H100 *****(R, H, S)*I***** R100 *****(R, H, S)*I*****	Ex ib IIC T1-6	- 83°C ≤ Ta ≤ +55 °C
F200 *****(R, H, S)*I***** H200 *****(R, H, S)*I***** R200 *****(R, H, S)*I*****	Ex ib IIC T1-6	- 138°C ≤ Ta ≤ +55 °C
F025 (A, B, C or E)****(R, H, S)*I*****	Ex ib IIC T1-T6	- 50°C ≤ Ta ≤ +55 °C
F050 (A, B, C or E)****(R, H, S)*I*****	Ex ib IIC T1-T6	- 50°C ≤ Ta ≤ +55 °C
F100 (A, B, C or E)****(R, H, S)*I*****	Ex ib IIC T1-T6	- 50°C ≤ Ta ≤ +55 °C
F300 (A, B, C or E)****(R, H, S)*I*****	Ex ib IIB T1-T6	- 50°C ≤ Ta ≤ +55 °C

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 06.0005X**
Annex

Modified Parameters

1 Type F***(A, B, C, E)****(R, H, S)*Z**** with J-box

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

Voltage	Ui	DC	11,4	V
Current	Ii		2,45	A
Power	Pi		2,54	W

Effective internal capacitance negligible

Sensor type	Inductance [mH]	Coil resistance [Ω]	Serial resistor [Ω]	Minimum Ambient/Fluid Temperature [°C]
F025(A,B,C,E)****(R, H, S)*I*****	1,8	19,8	55,3	-50 °C
F025(A,B,C,E)****(R, H, S)*I***** C.I.C. A1	0,9	13,5	38,5	-50 °C
F050(A,B,C,E)****(R, H, S)*I*****	1,8	19,8	55,3	-50 °C
F050(A,B,C,E)****(R, H, S)*I***** C.I.C. A1	0,9	13,5	38,5	-50 °C
F100(A,B,C,E)****(R, H, S)*I*****	1,8	19,8	55,3	-50 °C
F100(A,B,C,E)****(R, H, S)*I***** C.I.C. A1	0,9	13,5	38,5	-50 °C
F300(A,B,C,E)****(R, H, S)*I*****	7,75	54,3	19,8	-50 °C

1.2 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 negligible

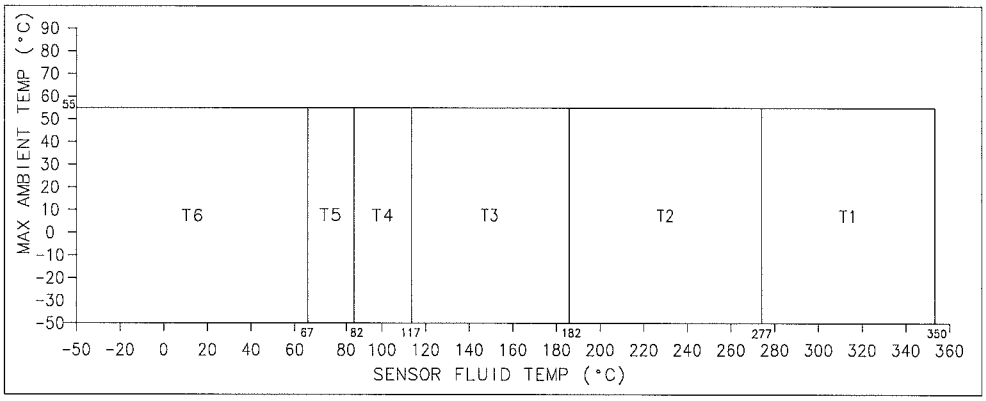
Sensor type	Inductance [mH]	Coil resistance[Ω]	Serial resistor [Ω]	Minimum Ambient/Fluid Temperature [°C]
F025(A,B,C,E)****(R, H, S)*I*****	1,8	19,8	0 – 569,2	-50 °C
F025(A,B,C,E)****(R, H, S)*I***** C.I.C. A1	0,9	13,5	0 – 569,2	-50 °C
F050(A,B,C,E)****(R, H, S)*I*****	1,8	19,8	0 – 569,2	-50 °C
F050(A,B,C,E)****(R, H, S)*I***** C.I.C. A1	0,9	13,5	0 – 569,2	-50 °C
F100(A,B,C,E)****(R, H, S)*I*****	1,8	19,8	0 – 569,2	-50 °C
F100(A,B,C,E)****(R, H, S)*I***** C.I.C. A1	0,9	13,5	0 – 569,2	-50 °C
F300(A,B,C,E)****(R, H, S)*I*****	6,5	41,1	0 – 569,2	-50 °C

1.3 Temperature circuits (terminals 3, 4 and 7 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	

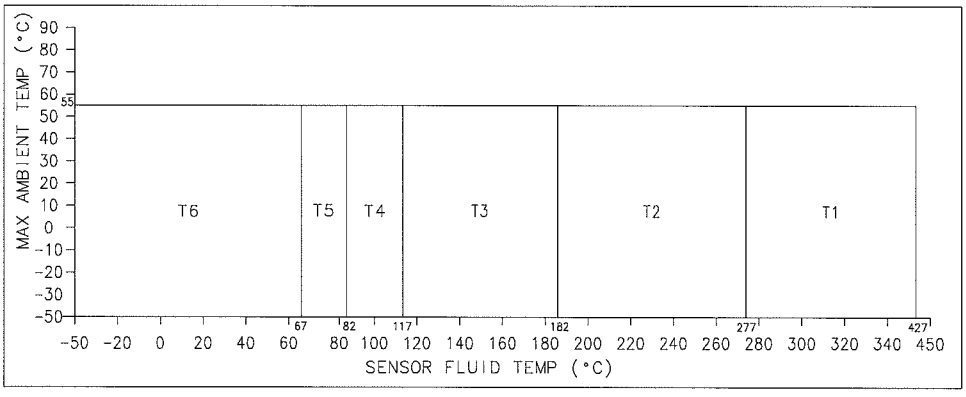
1.4 Temperature class
The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

1.4.1 For types F025(A, B)****(R, H, S)*I***** C.I.C. A1 or no marking, F050(A, B)****(R, H, S)*I***** C.I.C. A1 or no marking, F100(A, B)****(R, H, S)*I***** C.I.C. A1 or no marking and F300(A, B)****(R, H, S)*I***** no marking with J-box connected to MVD transmitters



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

1.4.2 For types F025(C, E)****(R, H, S)*I***** C.I.C. A1 or no marking, F050(C, E)****(R, H, S)*I***** C.I.C. A1 or no marking, F100(C, E)****(R, H, S)*I***** C.I.C. A1 or no marking and F300(C, E)****(R, H, S)*I***** no marking with J-box connected to MVD transmitters



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

1.5 Ambient temperature range Ta -50 °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.

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 06.0005X**
Annex

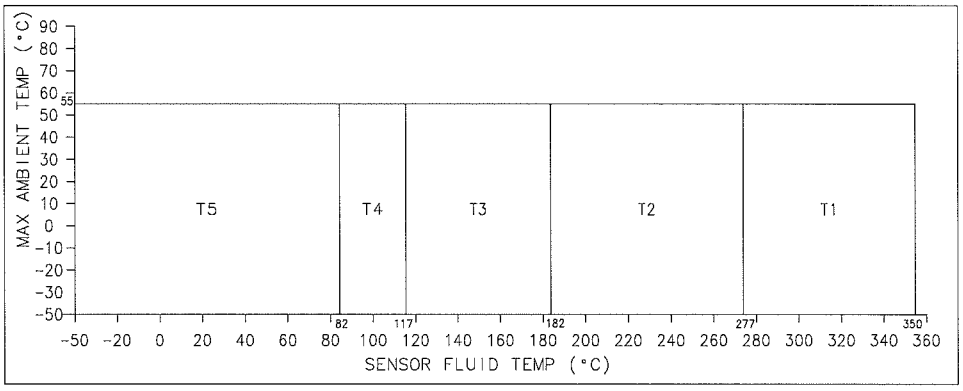
2 Type F***(A,B,C,E)****(2, 3, 4, 5, A, B, Q, V)*I*****

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

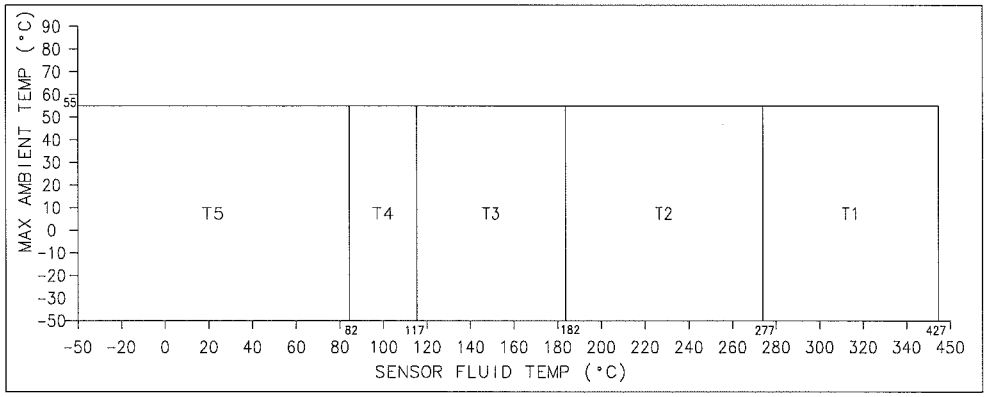
2.2 Temperature class
for types F***(A,B,C,E)****(2, 3, 4, 5, A, B, Q, V)*I**** C.I.C. A1 or no marking
The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

2.2.1 For types F025(A,B)****(2, 3, 4, 5, A, B, Q, V)*I***** C.I.C. A1 or no marking,
F050(A,B)****(2, 3, 4, 5, A, B, Q, V)*I***** C.I.C. A1 or no marking,
F100(A,B)****(2, 3, 4, 5, A, B, Q, V)*I***** C.I.C. A1 or no marking and
F300(A,B)****(2, 3, 4, 5, A, B, Q, V)*I***** no marking with integrally mounted core processor



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

2.2.2 For types F025(C,E)****(2, 3, 4, 5, A, B, Q, V)*I***** C.I.C. A1 or no marking,
F050(C,E)****(2, 3, 4, 5, A, B, Q, V)*I***** C.I.C. A1 or no marking,
F100(C,E)*****(2, 3, 4, 5, A, B, Q, V)*I***** and C.I.C. A1 or no marking
F300(C,E)****(2, 3, 4, 5, A, B, Q, V)*I***** no marking with integrally mounted core processor



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

2.3 Ambient temperature range Ta -50 °C bis +55 °C

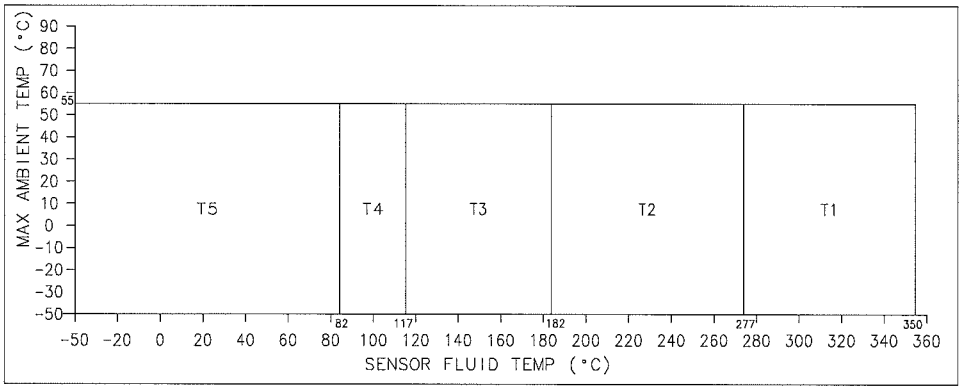
The use of the sensor at higher ambient temperatures is possible, since the electronics are mounted min. 1 meter away from the sensor by means of a flexible stainless steel hose and provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

3 Type F***(A,B,C,E)****(C, F)*I*****

3.1 Electrical parameters see IECEx BVS 04.0006 X for the transmitter type *700**********

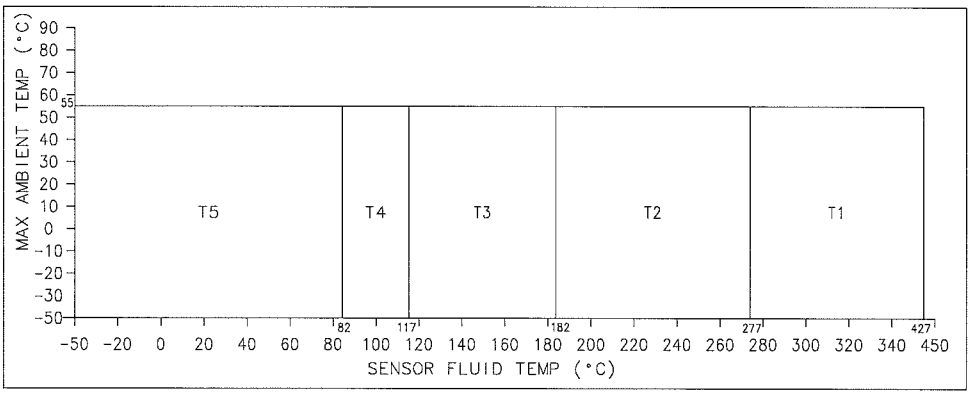
3.2 Temperature class
for types F***(A,B,C,E)****(C, F)*I**** C.I.C. A1 or no marking
The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

3.2.1 For types F025(A,B)****(C, F)*I*****C.I.C. A1 or no marking, F050(A,B)****(C, F)*I*****C.I.C. A1 or no marking and F100(A,B)****(C, F)*I*****C.I.C. A1 or no marking and F300(A,B)****(C, F)*I***** without marking with integrally mounted transmitter



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

3.2.2 For types F025(C,E)****(C, F)*I***** C.I.C. A1 or no marking, F050(C,E)****(C, F)*I***** C.I.C. A1 or no marking and F100(C,E)****(C, F)*I***** C.I.C. A1 or no marking and F300(C,E)****(C, F)*I***** without marking with integrally mounted transmitter



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

3.3 Ambient temperature range Ta -50 °C up to +55 °C

The use of the sensor at higher ambient temperatures is possible, since the electronics are mounted min. 1 meter away from the sensor by means of a flexible stainless steel hose and 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.

Marking

- 40°C ≤ Ta ≤ +55 °C

Type	type of protection
F025 *****(2-5, A, B, Q, V)*I***** H025 *****(2-5, A, B, Q, V)*I***** R025 *****(2-5, A, B, Q, V)*I*****	Ex ib IIC T1-T5
F050 *****(2-5, A, B, Q, V)*I***** H050 *****(2-5, A, B, Q, V)*I***** R050 *****(2-5, A, B, Q, V)*I***** CNG050 *****(2-5, A, B, Q, V)*I****	Ex ib IIC T1-T5
F100 *****(2-5, A, B, Q, V)*I***** H100 *****(2-5, A, B, Q, V)*I***** R100 *****(2-5, A, B, Q, V)*I*****	Ex ib IIC T1-T5
F200 *****(2-5, A, B, Q, V)*I***** H200 *****(2-5, A, B, Q, V)*I***** R200 *****(2-5, A, B, Q, V)*I*****	Ex ib IIC T1-T5
F300 *****(2-5, A, B, Q, V)*I***** H300 *****(2-5, A, B, Q, V)*I*****	Ex ib IIB T1-T5

- 50°C ≤ Ta ≤ +55 °C

F025(A, B, C, E)**** (2-5, A, B, Q, V)*I*****	Ex ib IIC T1–T5
F025(A, B, C, E)****(2-5, A, B, Q, V)*I***** C.I.C. A1	Ex ib IIC T1–T5
F050(A, B, C, E)****(2-5, A, B, Q, V)*I*****	Ex ib IIC T1–T5
F050(A, B, C, E)****(2-5, A, B, Q, V)*I***** C.I.C. A1	Ex ib IIC T1–T5
F100(A, B, C, E)****(2-5, A, B, Q, V)*I*****	Ex ib IIC T1–T5
F100(A, B, C, E)****(2-5, A, B, Q, V)*I***** C.I.C. A1	Ex ib IIC T1–T5
F300(A, B, C, E)****(2-5, A, B, Q, V)*I*****	Ex ib IIB T1–T5

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 06.0005X**
Annex

For Sensors with J-Box connected to MVD Transmitter (1700/2700)

Type	type of protection	Ambient temperature range
F025 *****(R, H,S)*I***** H025 *****(R, H,S)*I***** R025 *****(R, H,S)*I*****	Ex ib IIC T1-6	- 83°C ≤ Ta ≤ +55 °C
F050 *****(R, H, S)*I***** H050 *****(R, H, S)*I***** R050 *****(R, H, S)*I***** CNG050 *****(R, H, S)*I****	Ex ib IIC T1-6	- 83°C ≤ Ta ≤ +55 °C
F100 *****(R, H, S)*I***** H100 *****(R, H, S)*I***** R100 *****(R, H, S)*I*****	Ex ib IIC T1-6	- 83°C ≤ Ta ≤ +55 °C
F200 *****(R, H, S)*I***** H200 *****(R, H, S)*I***** R200 *****(R, H, S)*I*****	Ex ib IIC T1-6	- 138°C ≤ Ta ≤ +55 °C
F300 *****(R, H, S)*I***** H300 *****(R, H, S)*I*****	Ex ib IIB T1-T6	- 40°C ≤ Ta ≤ +55 °C
F025 (A, B, C or E)****(R, H, S)*I***** F025 (A, B, C or E)****(R, H, S)*I***** C.I.C. A1	Ex ib IIC T1-T6	- 50°C ≤ Ta ≤ +55 °C
F050 (A, B, C or E)****(R, H, S)*I***** F050 (A, B, C or E)****(R, H, S)*I***** C.I.C. A1	Ex ib IIC T1-T6	- 50°C ≤ Ta ≤ +55 °C
F100 (A, B, C or E)****(R, H, S)*I***** F100 (A, B, C or E)****(R, H, S)*I***** C.I.C. A1	Ex ib IIC T1-T6	- 50°C ≤ Ta ≤ +55 °C
F300 (A, B, C or E)****(R, H, S)*I*****	Ex ib IIB T1-T6	- 50°C ≤ Ta ≤ +55 °C

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 06.0005X issue No.:2	Certificate history: Issue No. 2 (2009-12-11) Issue No. 1 (2007-8-1) Issue No. 0 (2006-7-4)
Status:	**Current**	
Date of Issue:	**2009-12-11**	Page 1 of 4

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

Electrical Apparatus: **Sensor type F*** *******I*****, H*** *******I*****, R*** *******I*****, CNG050*******I****
Optional accessory:

Type of Protection: **Intrinsic safety**

Marking: **Ex ib IIB/IIC T1-T4/T5/T6**

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

Position: Head of Certification Body

Signature:
(for printed version)

Date: 11.12.2009

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 06.0005X

Date of Issue: **2009-12-11** Issue No.: **2**

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

Manufacturing location(s):

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

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

Emerson Process Management Flow B.V.
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

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 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-11 : 2006 Edition: 5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

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

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

DE/BVS/ExTR06.0037/02

Quality Assessment Report:
NO/DNV/QAR07.0002/00
NO/DNV/QAR07.0003/00
NO/DNV/QAR07.0008/01
NO/DNV/QAR08.0005/00

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 06.0005X

Date of Issue: **2009-12-11** Issue No.: **2**

Schedule

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

General:

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 (F*** *****(R, H, S)*I*****, H*** *****(R, H, S)*I*****, R*** *****(R, H, S)*I***** and CNG050 *****(R, H, S)*I****) an enclosure with an integral mounted signal processing device type 700 (IECEx BVS 04. 0002U) can be used; this variation gets the denomination type F*** *****(A, B)*I*****, H*** *****(A, B)*I*****, R*** *****(A, B)*I***** and CNG050 *****(A, B)*I**** for a stainless steel enclosure and F*** ***** (Q, V)*I*****, H*** ***** (Q, V)*I*****, R*** ***** (Q, V)*I***** and CNG050 ***** (Q, V)*I**** for an aluminium enclosure.
When used with an integral mounted enhanced signal processing device type 800 (IECEx BVS 05.0010U); the variation gets the denomination type F*** *****(3, 5)*I*****, H*** *****(3, 5)*I*****, R*** *****(3, 5)*I***** and CNG050 *****(3, 5)*I**** for a stainless steel enclosure and F*** *****(2, 4)*I*****, H*** *****(2, 4)*I*****, R*** *****(2 or 4)*I*****, CNG050 *****(2, 4)*I**** for an aluminium enclosure.
The high temperature version F*** (A, B, C, E)******I***** can be executed with a junction box, or transmitter, or core processor, or enhanced core processor; this variation has therefore always the denomination F*** (A, B, C, E)******I*****.

Alternatively a transmitter type *700********* (IECEx BVS 04.0006X) can be mounted directly to the junction box; this variation gets the denomination
type F*** *****(C, F)*I*****, H*** *****(C, F)*I*****, R*** *****(C, F)*I***** and CNG050 *****(C, F)*I****.

Modified Parameters and Marking:

See Annex

CONDITIONS OF CERTIFICATION: YES as shown below:

Special conditions for safe use

See Annex

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 06.0005X

Date of Issue: **2009-12-11** Issue No.: **2**

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

- Electronic interface codes J and U are added for the 2200S transmitter (IECEx BVS 08.0042 X).
- Electronic interface code T for 9-wire stainless steel junction box on extender has been added.
- The F/H300 IIC with approval option code 7 and CIC A4 have been added.
- Revised electrical parameters for sensors with junction box.
- Manufacturing location Emerson Process Management Flow BV has been added.
- Manufacturing location Emerson Process Management Flow Technologies Co, Nanjing has been added.
- Changed the EXCB for quality supervision to DNV.
- Add 1700/2700 Wireless HART Temp Diagrams.
- Add Wireless Output Code 4 to 1700/2700 transmitters.
- Revised Ambient Temp Limits to +60C for Sensor Electronic Interface Options for Core (2-9, A, B, D, E, Q, V, W, Y).

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

Annexe: Annex_IECEx_BVS06.0005X.pdf, Annex_IECEx_BVS_06.0005X_N1.pdf, BVS_06_0005 X_Micro_Annex issue 2.pdf

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 06.0005 X issue no. 2**
Annex

Modified Parameters

3.1 Type F*** *****(R, H, S or T)*I***** except F*** (A, B, C or E)****(R,S)*I*****
H*** *****(R, H, or T)*I*****
R*** *****(R, H, S or T)*I*****
CNG050 *****(R, H, S or T)*I****

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

Voltage	Ui	DC	10.5	V
Current	Ii		2.45	A
Power	Pi		2.54	W
Effective internal capacitance			Negligible	

Sensor type	Inductance (mH)	Coil Resistance (Ω)	Series Resistor (Ω)	Minimum Ambient/Fluid Temp (°C)
F025 *****(R,H,S,T)*I***** H025 *****(R,H,S,T)*I***** R025 *****(R,H,S,T)*I*****	7.5	77.27	568.83	-83°C
F050 *****(R.H.S.T)*I***** H050 *****(R.H.S.T)*I***** R050 *****(R.H.S.T)*I***** CNG050 *****(R.H.S.T)*I****	7.5	77.27	568.83	-83°C
F100 *****(R.H.S.T)*I***** H100 *****(R.H.S.T)*I***** R100 *****(R.H.S.T)*I*****	7.5	77.27	71.1	-83°C
F200 *****(R.H.S.T)*I***** H200 *****(R.H.S.T)*I***** R200 *****(R.H.S.T)*I*****	9.4	18.43	148.03	-138°C
F300 *****(R.H.S.T)*I***** H300 *****(R.H.S.T)*I*****	11.75	83.5	7.9	-40°C
F300*****(R.H.S.T)*I***** CIC A4 H300*****(R.H.S.T)*I***** CIC A4	11.75	57.8	129	-100°C
F300*****(R.H.S.T)*7***** H300*****(R.H.S.T)*7*****	11.75	57.8	129	-100°C

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

Voltage	Ui	DC	21.13	V
Current	Ii		18.05	mA
Power	Pi		45	mW
Effective internal capacitance	Ci		Negligible	

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 06.0005 X issue no. 2**
Annex

Modified Parameters

3.1 Type F*** *****(R, H, S or T)*I***** except F*** (A, B, C or E)****(R,S)*I*****
H*** *****(R, H, or T)*I*****
R*** *****(R, H, S or T)*I*****
CNG050 *****(R, H, S or T)*I****

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

Voltage	Ui	DC	10.5	V
Current	Ii		2.45	A
Power	Pi		2.54	W
Effective internal capacitance			Negligible	

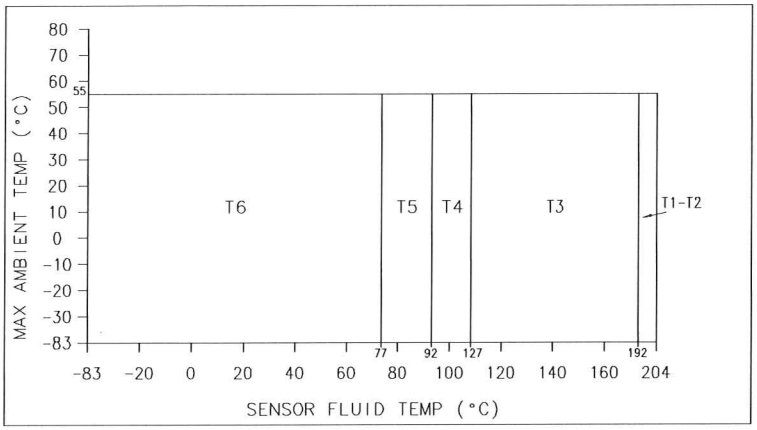
Sensor type	Inductance (mH)	Coil Resistance (Ω)	Series Resistor (Ω)	Minimum Ambient/Fluid Temp (°C)
F025 *****(R,H,S,T)*I***** H025 *****(R,H,S,T)*I***** R025 *****(R,H,S,T)*I*****	7.5	77.27	568.83	-83°C
F050 *****(R.H.S.T)*I***** H050 *****(R.H.S.T)*I***** R050 *****(R.H.S.T)*I***** CNG050 *****(R.H.S.T)*I****	7.5	77.27	568.83	-83°C
F100 *****(R.H.S.T)*I***** H100 *****(R.H.S.T)*I***** R100 *****(R.H.S.T)*I*****	7.5	77.27	71.1	-83°C
F200 *****(R.H.S.T)*I***** H200 *****(R.H.S.T)*I***** R200 *****(R.H.S.T)*I*****	9.4	18.43	148.03	-138°C
F300 *****(R.H.S.T)*I***** H300 *****(R.H.S.T)*I*****	11.75	83.5	7.9	-40°C
F300*****(R.H.S.T)*I***** CIC A4 H300*****(R.H.S.T)*I***** CIC A4	11.75	57.8	129	-100°C
F300*****(R.H.S.T)*7***** H300*****(R.H.S.T)*7*****	11.75	57.8	129	-100°C

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

Voltage	Ui	DC	21.13	V
Current	Ii		18.05	mA
Power	Pi		45	mW
Effective internal capacitance	Ci		Negligible	

3.1.4 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 graphs:

3.1.4.1 For type F025 *****(R,H,S,T)*I***** , H025 *****(R,H,S,T)*I*****, R025 *****(R,H,S,T)*I*****, F050 *****(R,H,S,T)*I***** , H050 *****(R,H,S,T)*I*****, R050 *****(R,H,S,T)*I***** and CNG050 *****(R,H,S,T)*I**** connected to MVD transmitters (e.g. 1700/2700):

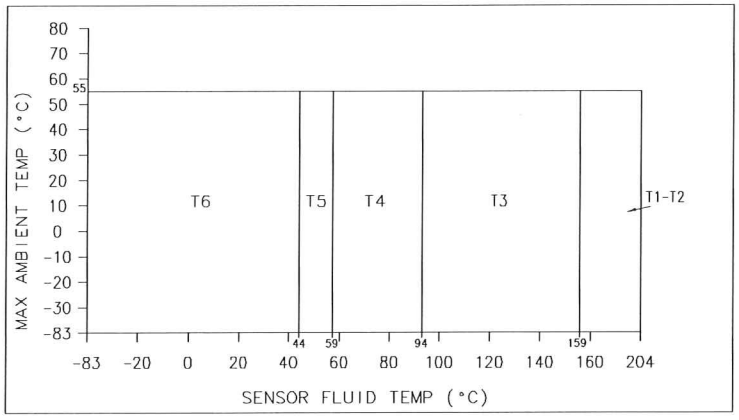


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range: Ta -83 °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.

3.1.4.2 For type F100 *****(R,H,S,T)*I***** , H100 *****(R,H,S,T)*I***** and R100 *****(R,H,S,T)*I***** connected to MVD transmitters (e.g. 1700/2700):

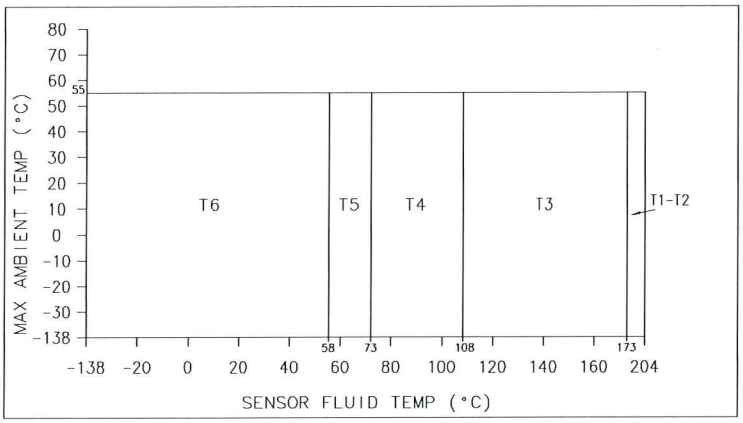


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range: Ta –83°C 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.

3.1.4.3 For type F200 *****(R,H,S,T)*I***** , H200 *****(R,H,S,T)*I***** and R200 *****(R,H,S,T)*I***** connected to MVD transmitters (e.g. 1700/2700):

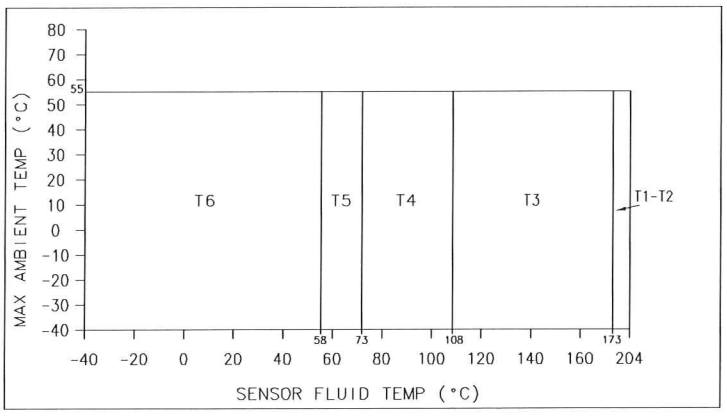


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range: Ta –138°C 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.

3.1.4.4 For type F300 *****(R,H,S,T)*I***** and H300 *****(R,H,S,T)*I***** connected to MVD transmitters (e.g. 1700/2700):

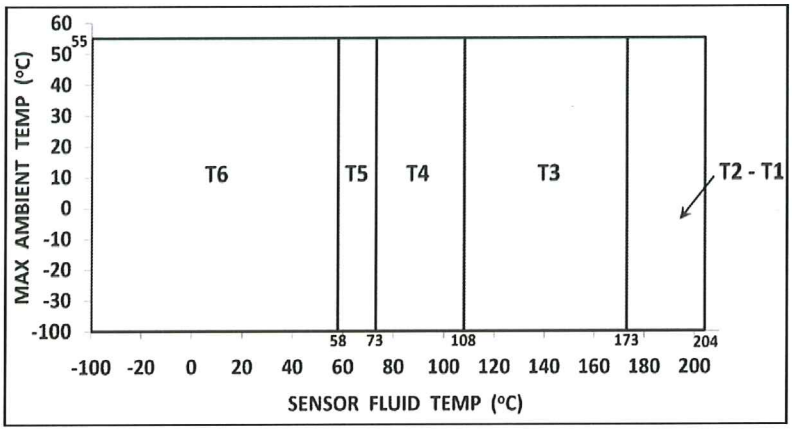


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range: Ta –40°C 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.

3.1.4.5 For type F300 *****(R,H,S,T)*I***** CIC A4, H300 *****(R,H,S,T)*I***** CIC A4, F300 *****(R,H,S,T)*7***** and H300 *****(R,H,S,T)*7***** connected to MVD transmitters (e.g. 1700/2700):



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

Ambient temperature range: Ta –100°C to + 55°C

The use of the sensor at higher ambient temperature 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.

3.2 Type F***(A, B, C, E)****(R,S)*I**** with J-box

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

Voltage	Ui	DC	11.4	V
Current	Ii		2.45	A
Power	Pi		2.54	W

Effective internal capacitance negligible

Sensor type	Inductance [mH]	Coil resistance [Ω]	Serial resistor [Ω]	Minimum Ambient/Fluid Temperature [°C]
F025(A,B,C,E)****(R,S)*I*****	1.8	19.8	55.3	-50 °C
F025(A,B,C,E)****(R,S)*I***** C.I.C. A1	0.9	13.5	38.5	-50 °C
F050(A,B,C,E)****(R,S)*I*****	1.8	19.8	55.3	-50 °C
F050(A,B,C,E)****(R,S)*I***** C.I.C. A1	0.9	13.5	38.5	-50 °C
F100(A,B,C,E)****(R,S)*I*****	1.8	19.8	55.3	-50 °C
F100(A,B,C,E)****(R,S)*I***** C.I.C. A1	0.9	13.5	38.5	-50 °C
F300(A,B,C,E)****(R,S)*I*****	7.75	54.3	19.8	-50 °C

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

Voltage	Ui	DC	21.13	V
Current	Ii		18.05	mA
Power	Pi		45	mW

Effective internal capacitance negligible

Sensor type	Inductance [mH]	Coil resistance [Ω]	Serial resistor [Ω]	Minimum Ambient/Fluid Temperature [°C]
F025(A,B,C,E)****(R,S)*I*****	1.8	19.8	0 – 569.2	-50 °C
F025(A,B,C,E)****(R,S)*I***** C.I.C. A1	0.9	13.5	0 – 569.2	-50 °C
F050(A,B,C,E)****(R,S)*I*****	1.8	19.8	0 – 569.2	-50 °C
F050(A,B,C,E)****(R,S)*I***** C.I.C. A1	0.9	13.5	0 – 569.2	-50 °C
F100(A,B,C,E)****(R,S)*I*****	1.8	19.8	0 – 569.2	-50 °C
F100(A,B,C,E)****(R,S)*I***** C.I.C. A1	0.9	13.5	0 – 569.2	-50 °C
F300(A,B,C,E)****(R,S)*I*****	6.5	41.1	0 – 569.2	-50 °C

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

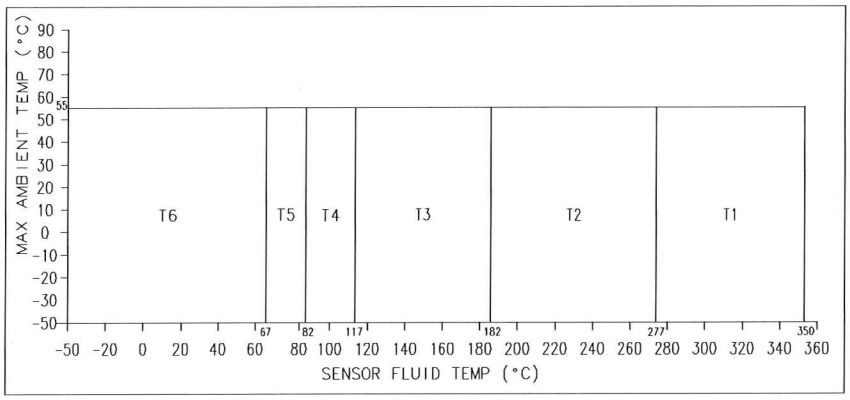
Voltage	Ui	DC	21.13	V
Current	Ii		26	mA
Power	Pi		112	mW
Effective internal capacitance	Ci	negligible		
Effective internal inductance	Li	negligible		

Identification resistor circuit (terminals 3 & 4 or wires orange and yellow)

Sensor type	Inductance [mH]	Coil resistance [Ω]	Serial resistor [Ω]	Minimum Ambient/Fluid Temperature [°C]
F025(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50°C
F025(A,B,C,E)****(R,S)*I***** C.I.C. A1	N/A	N/A	42.2 to 44.3	-50°C
F050(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50°C
F050(A,B,C,E)****(R,S)*I***** C.I.C. A1	N/A	N/A	42.2 to 44.3	-50°C
F100(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50°C
F100(A,B,C,E)****(R,S)*I***** C.I.C. A1	N/A	N/A	42.2 to 44.3	-50°C
F300(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50°C

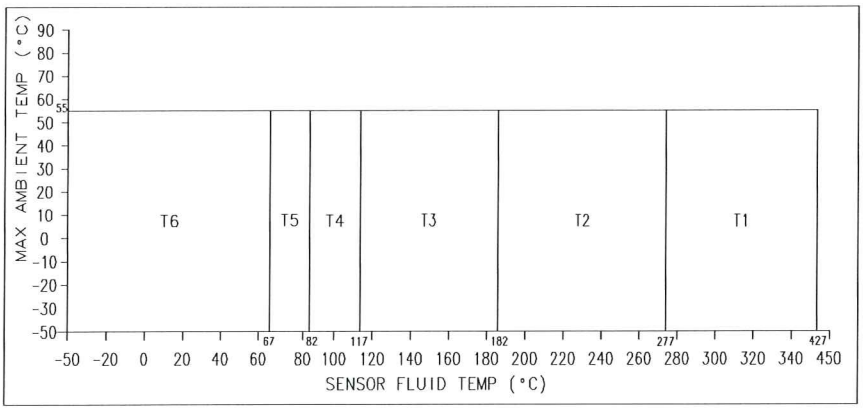
3.2.4 Temperature class
The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

3.2.4.1 For types F025(A, B)****(R,S)*I***** C.I.C. A1 or no marking, F050(A, B)****(R,S)*I***** C.I.C. A1 or no marking, F100(A, B)****(R,S)*I***** C.I.C. A1 or no marking and F300(A, B)****(R,S)*I***** no marking with J-box connected to MVD transmitters (e.g. 1700/2700):



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

3.2.4.2 For types F025(C, E)****(R,S)*I***** C.I.C. A1 or no marking, F050(C, E)****(R,S)*I***** C.I.C. A1 or no marking, F100(C, E)****(R,S)*I***** C.I.C. A1 or no marking and F300(C, E)****(R,S)*I***** no marking with J-box connected to MVD transmitters (e.g. 1700/2700):



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

3.2.5 Ambient temperature range Ta -50 °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.

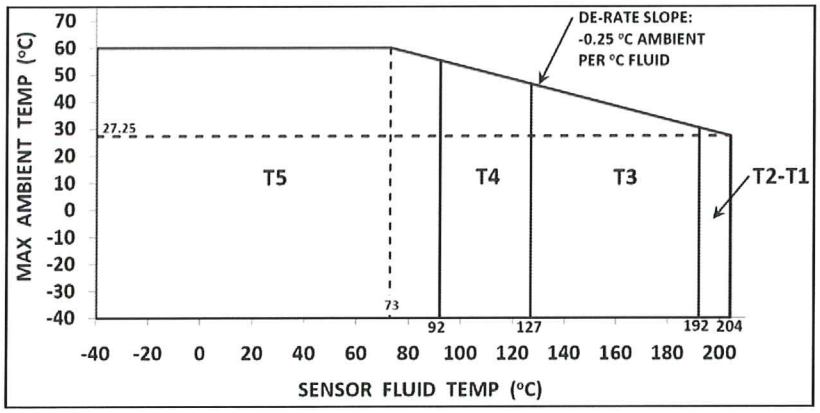
3.3 Type F*** *****(2-9, A, B, D, E, Q, V, W or Y)******* with integral core-processor, H*** *****(2-9, A, B, D, E, Q, V, W or Y)*******, R*** *****(2-9, A, B, D, E, Q, V, W or Y)******* and CNG050 *****(2-9, A, B, D, E, Q, V, W or Y)****** except type F***(A, B, C, E)****(2, 3, 6, 7, A, D, Q or W)*******

3.3.1 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

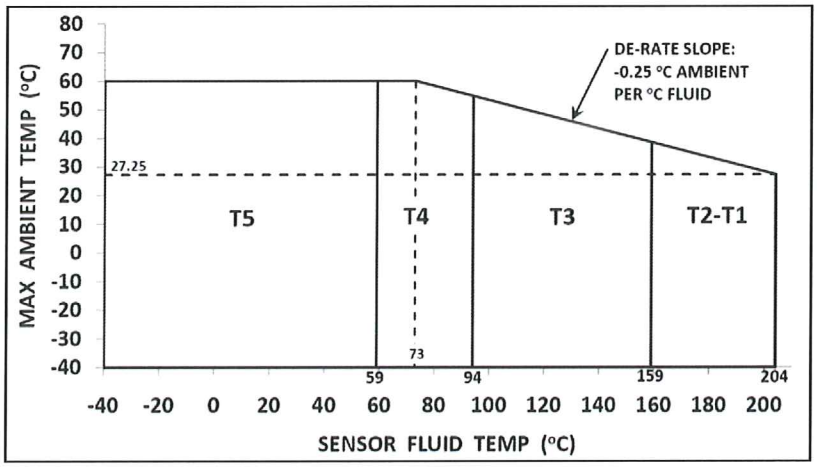
3.3.2. Temperature class.
The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

3.3.2.1 For type F025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****, H025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****, R025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****, F050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****, H050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****, R050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** and CNG050 *****(2-9, A, B, D, E, Q, V, W or Y)*I****



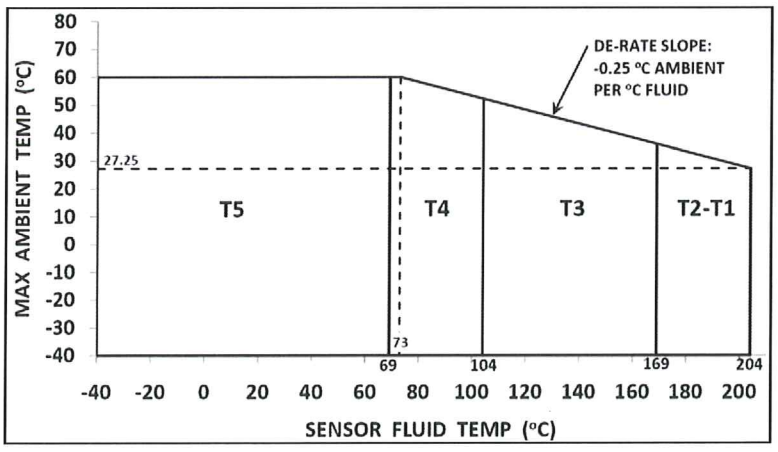
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

3.3.2.2. For type F100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****,
H100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** and
R100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****



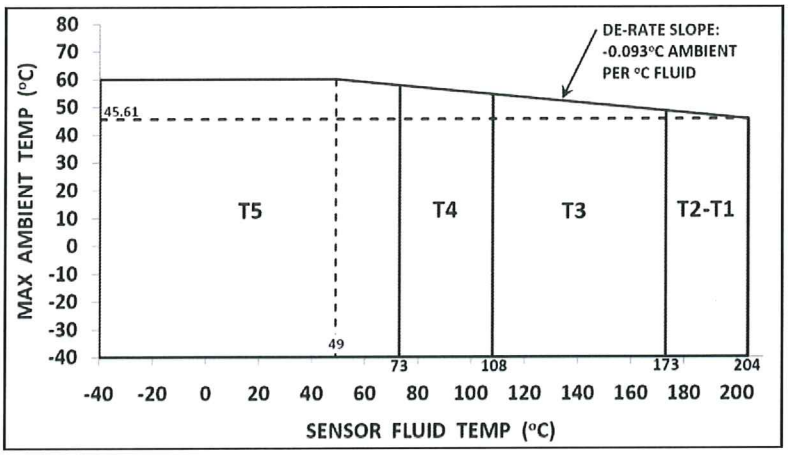
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

3.3.2.3. For type F200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****,
H200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** and
R200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****



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

3.3.2.4. For type F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****,
H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****,
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A4,
H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A4,
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*7***** and
H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*7*****



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

3.3.3 Ambient temperature range: Ta –40°C to +60°C.

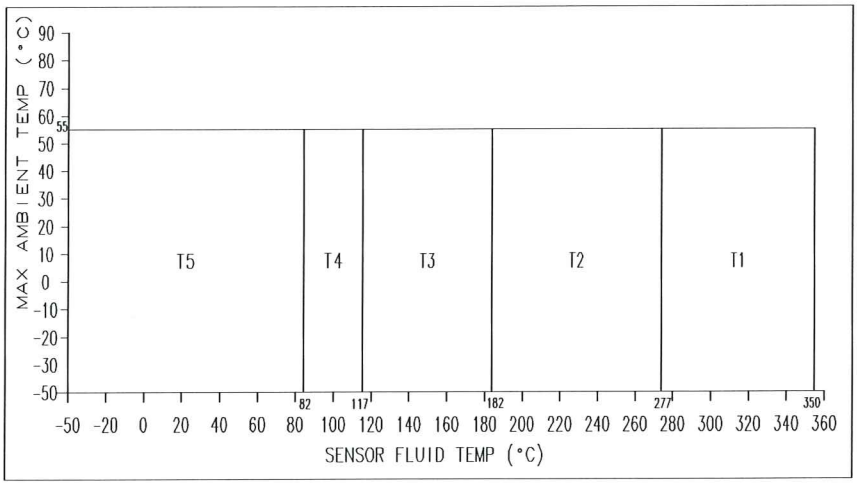
3.4 Type F***(A,B,C,E)****(2, 3, 6, 7, A, D, Q, W)*I*****

3.4.1 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

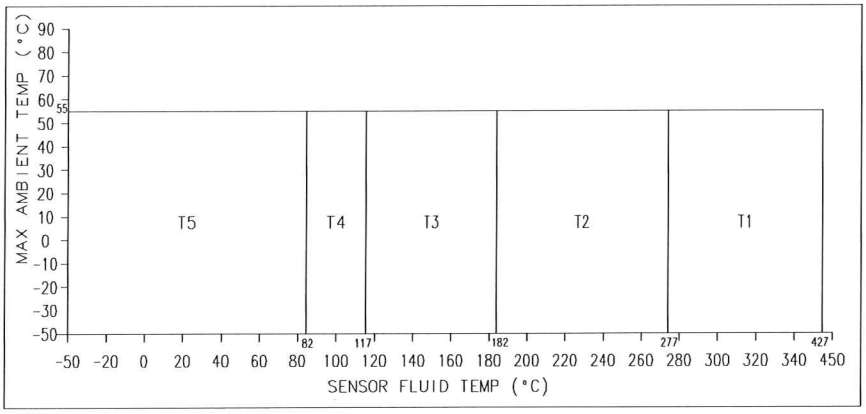
3.4.2 Temperature class
for types F***(A,B,C,E)****(2, 3, 6, 7, A, D, Q, W)*I**** C.I.C. A1 or no marking
The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

3.4.2.1 For types F025(A,B)****(2, 3, 6, 7, A, D, Q, W)*I***** C.I.C. A1 or no marking,
F050(A,B)****(2, 3, 6, 7, A, D, Q, W)*I***** C.I.C. A1 or no marking,
F100(A,B)****(2, 3, 6, 7, A, D, Q, W)*I***** C.I.C. A1 or no marking and
F300(A,B)****(2, 3, 6, 7, A, D, Q, W)*I***** no marking with integrally mounted core processor



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

3.4.2.2 For types F025(C,E)****(2, 3, 6, 7, A, D, Q, W)*I***** C.I.C. A1 or no marking,
F050(C,E)****(2, 3, 6, 7, A, D, Q, W)*I***** C.I.C. A1 or no marking,
F100(C,E)*****(2, 3, 6, 7, A, D, Q, W)*I***** and C.I.C. A1 or no marking
F300(C,E)****(2, 3, 6, 7, A, D, Q, W)*I***** no marking with integrally mounted core processor



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

3.4.3 Ambient temperature range Ta -50 °C to +55 °C

The use of the sensor at higher ambient temperatures is possible, since the electronics are mounted min. 1 meter away from the sensor by means of a flexible stainless steel hose and 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.

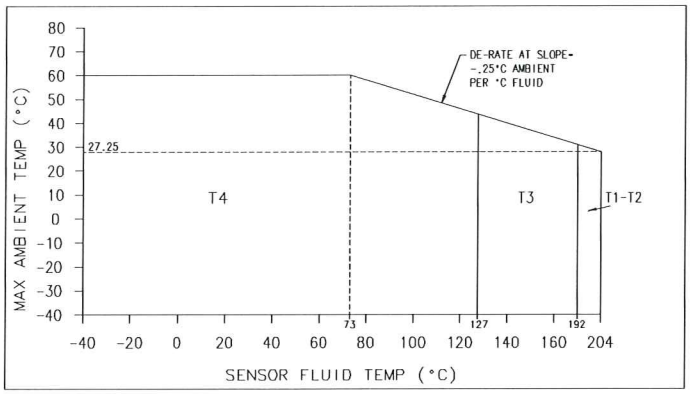
3.5 Type F*** *****(J or U)******* , H*** *****(J or U)*******, R*** *****(J or U)******* and CNG050 *****(J or U)****** with 2200S transmitter except type F***(A, B, C, E)****J*******

3.5.1 Input circuits (terminals 1-2)

Voltage	Ui	DC	28	V
Current	Ii		120	mA
Power	Pi		0.84	W
Effective internal capacitance	Ci		2200	pF
Effective internal inductance	Li		45	µH

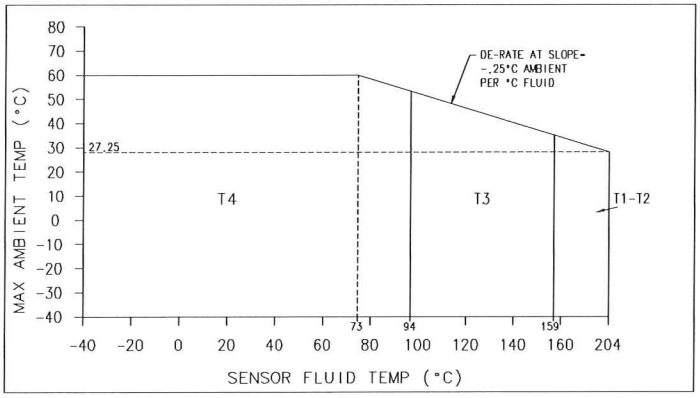
3.5.2 Temperature class.
The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graphs:

3.5.2.1 For type F025 *****(J,U)*I*****, H025 *****(J,U)*I*****, R025 *****(J,U)*I*****, F050 *****(J,U)*I*****, H050 *****(J,U)*I***** , R050 *****(J,U)*I***** and CNG050 *****(J or U)*I****



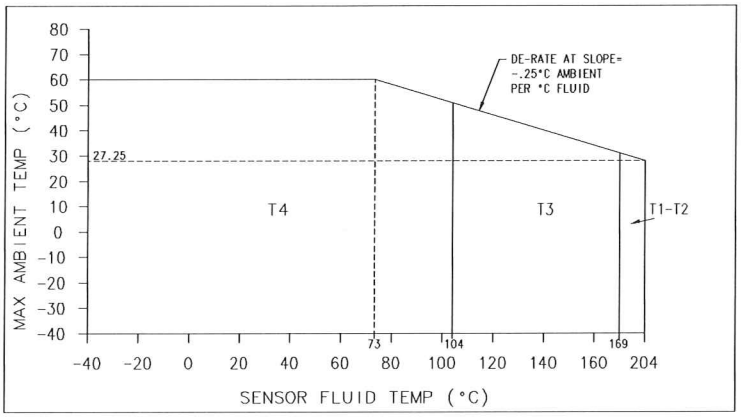
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

3.5.2.2 For type F100 *****(J,U)*I*****, H100 *****(J,U)*I***** and R100 *****(J,U)*I*****



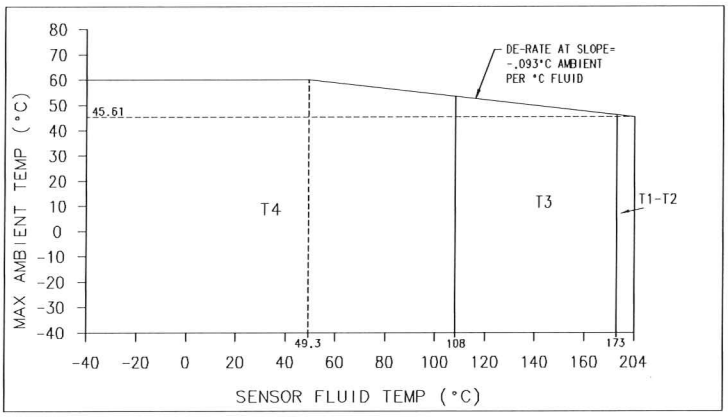
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

3.5.2.3 For type F200 *****(J,U)*I*****, H200 *****(J,U)*I***** and R200 *****(J,U)*I*****



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

3.5.2.4 For type F300 *****(J,U)*I*****, H300 *****(J,U)*I*****, F300 *****(J,U)*I***** CIC A4, H300*****(J,U)*I***** CIC A4, F300 *****(J,U)*7***** and H300 *****(J,U)*7*****



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

3.5.3 Ambient temperature range: Ta -40°C to +60°C

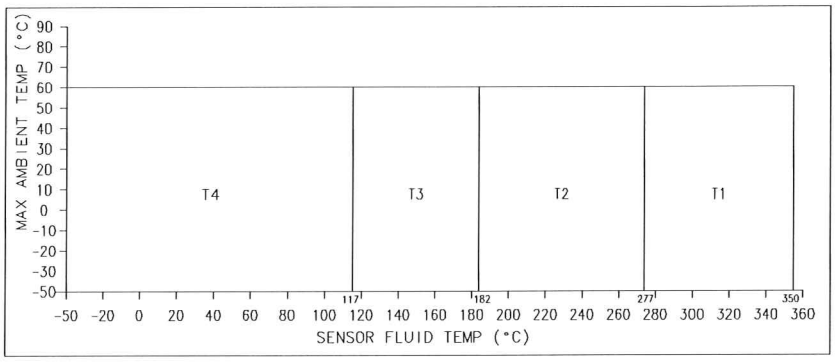
3.6 F***(A, B, C, E)****J*******

3.6.1 Input circuits (terminals 1-2)

Voltage	Ui	DC	28	V
Current	Ii		120	mA
Power	Pi		0.84	W
Effective internal capacitance	Ci		2200	pF
Effective internal inductance	Li		45	µH

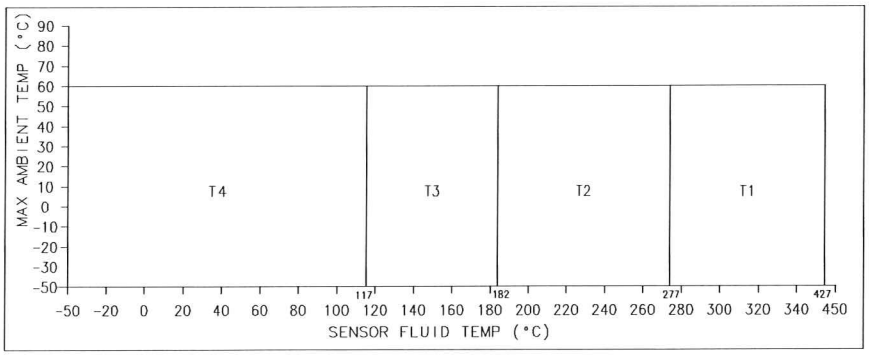
3.6.2 Temperature class.
The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

3.6.2.1 For type F025(A,B)****J*I*****, F050(A,B)****J*I*****, F100(A,B)****J*I*****, F300(A,B)****J*I*****, F025(A,B)****J*I***** CIC A1, F050(A,B)****J*I***** CIC A1 and F100(A,B)****J*I***** CIC A1



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

3.6.2.2 For type F025(C,E)****J*I*****, F050(C,E)****J*I*****, F100(C,E)****J*I*****, F300(C,E)****J*I*****, F025(C,E)****J*I***** CIC A1, F050(C,E)****J*I***** CIC A1 and F100(C,E)****J*I***** CIC A1



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

3.6.3 Ambient temperature range: Ta –50°C to + 60°C

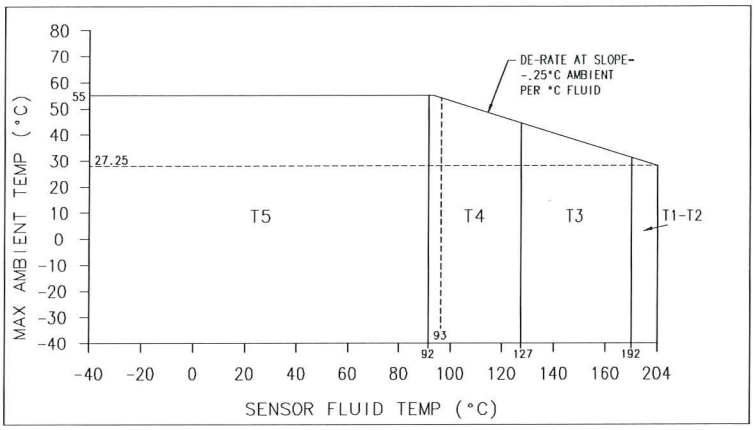
The use of the sensor at higher ambient temperatures is possible, since the electronics are mounted minimum 1 meter away from the sensor by means of a flexible stainless steel hose, and provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

3.7 Type F*** *****(C or F)******* with integral core-processor, H*** *****(C or F)*******, R*** *****(C or F)******* and CNG050 *****(C or F)****** except type F***(A, B, C, E)****C*******

3.7.1 Electrical parameters see IECEx BVS 04.0006X for the transmitter type *700**********

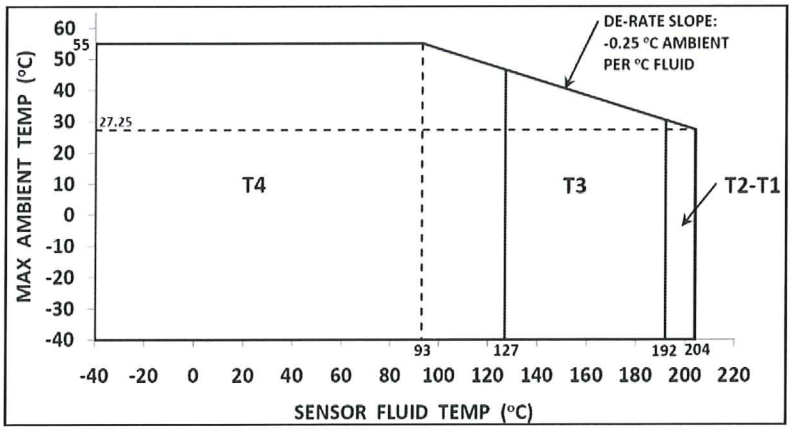
3.7.2 Temperature class.
The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

3.7.2.1 For type F025*****(C,F)*I*****, H025*****(C,F)*I*****, R025*****(C,F)*I*****, F050*****(C,F)*I*****, H050*****(C,F)*I*****, R050*****(C,F)*I***** and CNG050*****(C,F)*I****



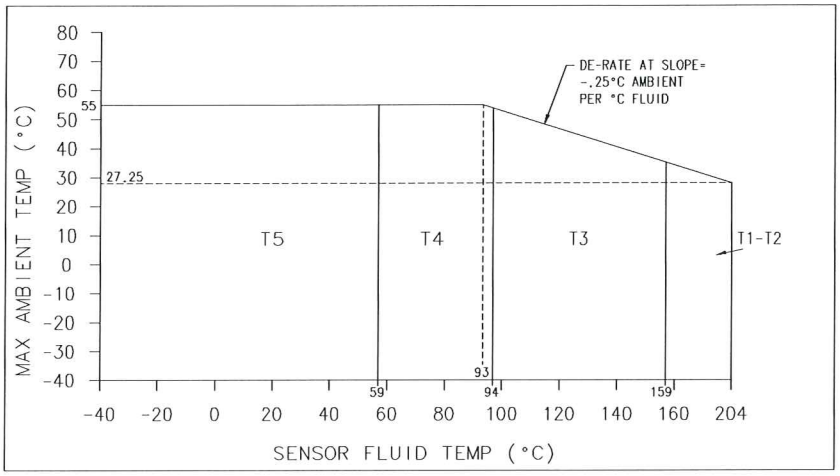
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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



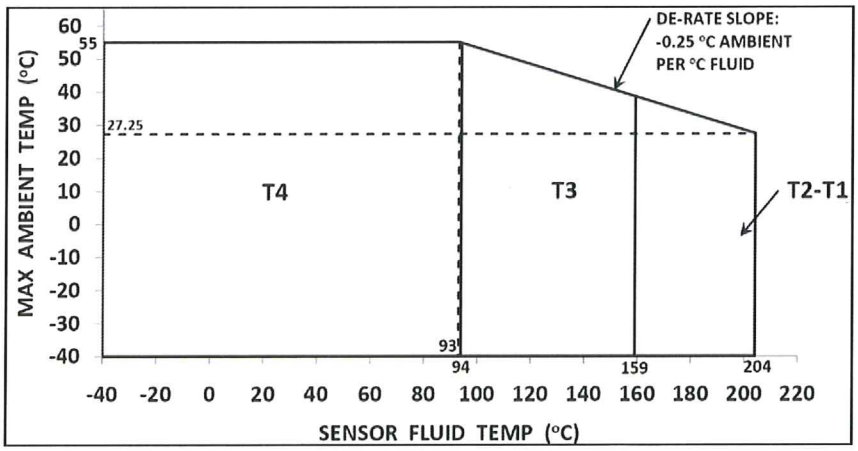
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

3.7.2.2 For type F100*****(C,F)*I*****, H100*****(C,F)*I***** and R100*****(C,F)*I*****



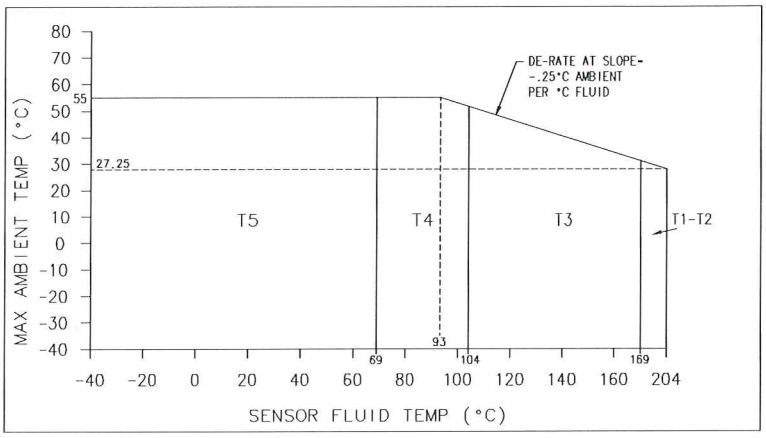
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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



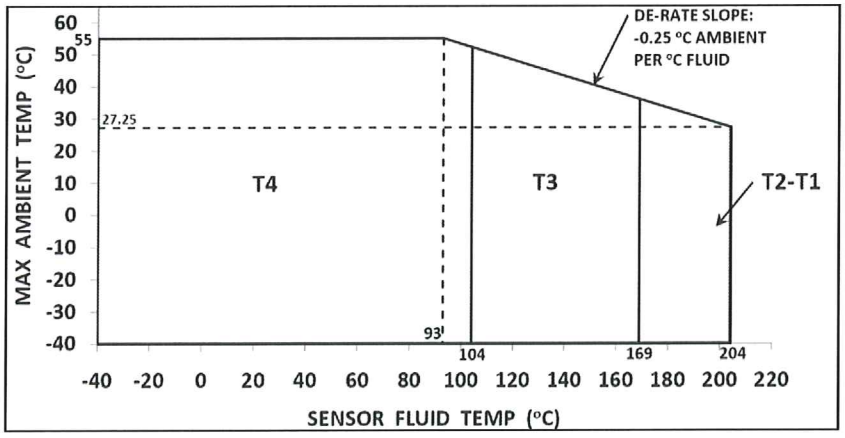
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

3.7.2.3 For type F200*****(C,F)*I*****, H200*****(C,F)*I***** and R200*****(C,F)*I*****



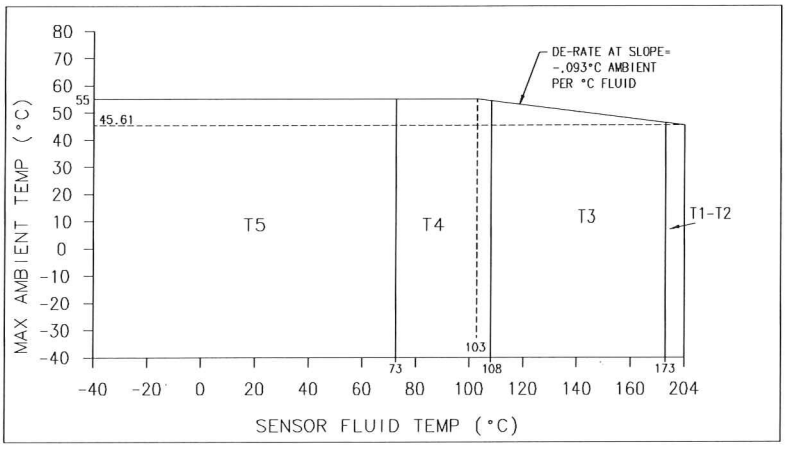
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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



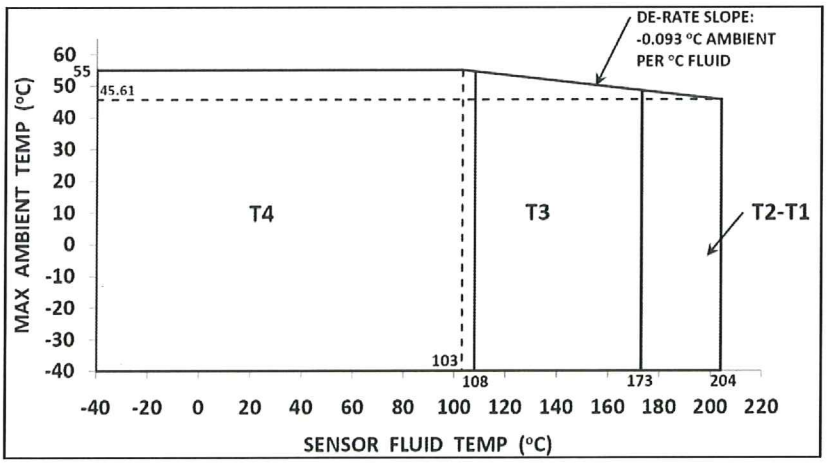
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

3.7.2.4 For type F300*****(C,F)*I*****, H300*****(C,F)*I*****, F300*****(C,F)*I***** CIC A4, H300*****(C,F)*I***** CIC A4, F300*****(C,F)*7***** and H300*****(C,F)*7*****



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

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



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

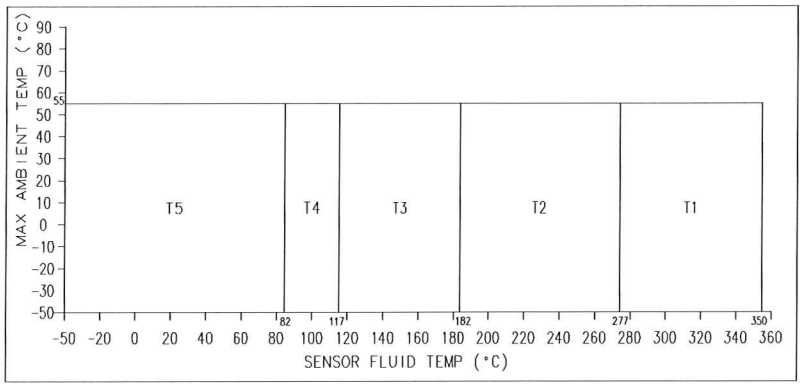
3.7.3 Ambient temperature range Ta –40°C to + 55°C

3.8 Type F***(A,B,C,E)****C*I*****

3.8.1 Electrical parameters see IECEx BVS 04.0006 X for the transmitter type *700**********

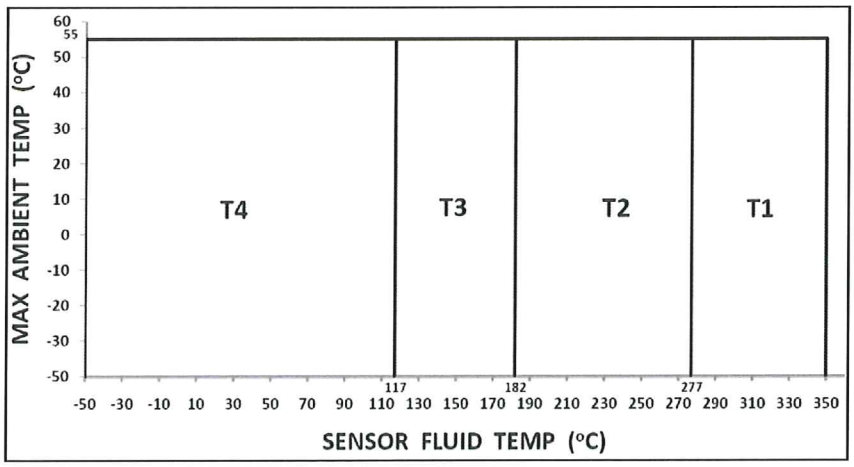
3.8.2 Temperature class
The classification into a temperature class depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

3.8.2.1 For types F025(A,B)****C*I*****C.I.C. A1 or no marking, F050(A,B)****C*I*****C.I.C. A1 or no marking and F100(A,B)****C*I*****C.I.C. A1 or no marking and F300(A,B)****C*I***** without marking with integrally mounted transmitter



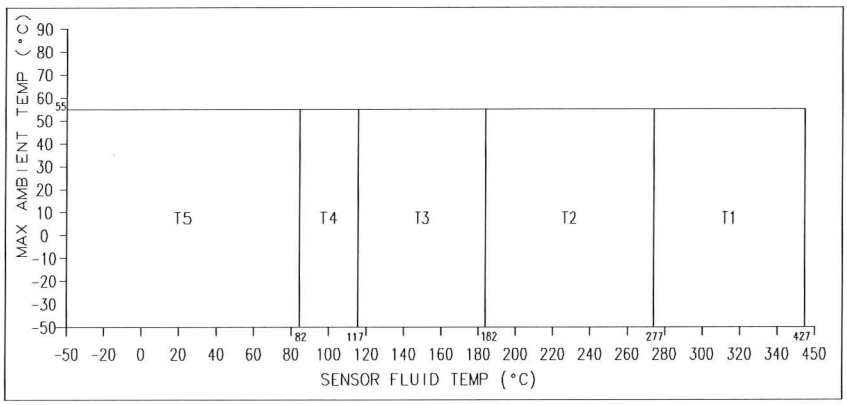
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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



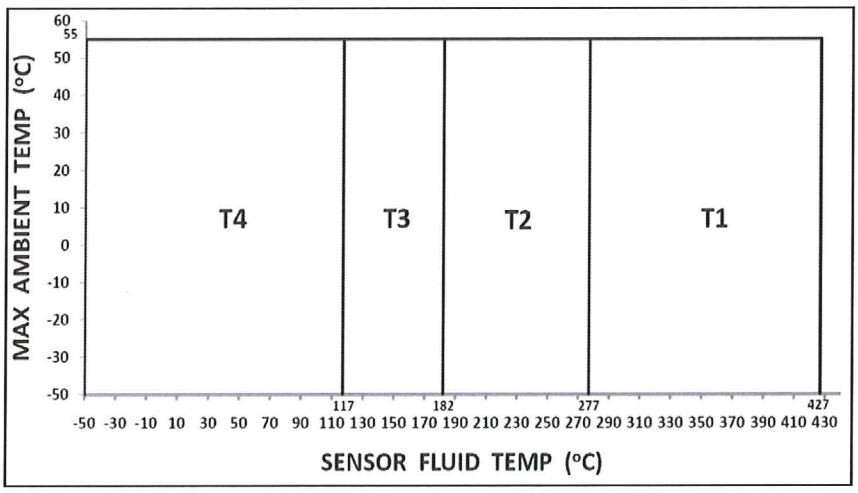
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

3.8.2.2 For types F025(C,E)****C*I***** C.I.C. A1 or no marking, F050(C,E)****C*I***** C.I.C. A1 or no marking and F100(C,E)****C*I***** C.I.C. A1 or no marking and F300(C,E)****C*I***** without marking with integrally mounted transmitter



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

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



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

3.8.3 Ambient temperature range Ta -50 °C up to +55 °C

The use of the sensor at higher ambient temperatures is possible, since the electronics are mounted min. 1 meter away from the sensor by means of a flexible stainless steel hose and 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.

Marking

Type	Type of protection	Ambient temperature range
F025 *****(R, H, S, T)*I***** H025 *****(R, H, S, T)*I***** R025 *****(R, H, S, T)*I*****	Ex ib IIC T1-T6	-83°C ≤ Ta ≤ +55 °C
F050 *****(R, H, S, T)*I***** H050 *****(R, H, S, T)*I***** R050 *****(R, H, S, T)*I***** CNG050 *****(R, H, S, T)*I****	Ex ib IIC T1-T6	-83°C ≤ Ta ≤ +55 °C
F100 *****(R, H, S, T)*I***** H100 *****(R, H, S, T)*I***** R100 *****(R, H, S, T)*I*****	Ex ib IIC T1-T6	-83°C ≤ Ta ≤ +55 °C
F200 *****(R, H, S, T)*I***** H200 *****(R, H, S, T)*I***** R200 *****(R, H, S, T)*I*****	Ex ib IIC T1-T6	-138°C ≤ Ta ≤ +55 °C
F300 *****(R, H, S, T)*I***** H300 *****(R, H, S, T)*I*****	Ex ib IIB T1-T6	-40°C ≤ Ta ≤ +55 °C
F300 *****(R, H, S, T)*I***** CIC A4 H300 *****(R, H, S, T)*I***** CIC A4	Ex ib IIC T1-T6	-100°C ≤ Ta ≤ +55 °C
F300 *****(R, H, S, T)*7***** H300 *****(R, H, S, T)*7*****	Ex ib IIC T1-T6	-100°C ≤ Ta ≤ +55 °C

-40°C ≤ Ta ≤ +60 °C

Type	Type of protection
F025 *****(2-9, A, B, D, E, Q, V, W, Y)*I***** H025 *****(2-9, A, B, D, E, Q, V, W, Y)*I***** R025 *****(2-9, A, B, D, E, Q, V, W, Y)*I*****	Ex ib IIC T1-T5
F050 *****(2-9, A, B, D, E, Q, V, W, Y)*I***** H050 *****(2-9, A, B, D, E, Q, V, W, Y)*I***** R050 *****(2-9, A, B, D, E, Q, V, W, Y)*I***** CNG050 *****(2-9, A, B, D, E, Q, V, W, Y)*I****	Ex ib IIC T1-T5
F100 *****(2-9, A, B, D, E, Q, V, W, Y)*I***** H100 *****(2-9, A, B, D, E, Q, V, W, Y)*I***** R100 *****(2-9, A, B, D, E, Q, V, W, Y)*I*****	Ex ib IIC T1-T5
F200 *****(2-9, A, B, D, E, Q, V, W, Y)*I***** H200 *****(2-9, A, B, D, E, Q, V, W, Y)*I***** R200 *****(2-9, A, B, D, E, Q, V, W, Y)*I*****	Ex ib IIC T1-T5
F300 *****(2-9, A, B, D, E, Q, V, W, Y)*I***** H300 *****(2-9, A, B, D, E, Q, V, W, Y)*I*****	Ex ib IIB T1-T5
F300 *****(2-9, A, B, D, E, Q, V, W, Y)*I***** CIC A4 H300 *****(2-9, A, B, D, E, Q, V, W, Y)*I***** CIC A4	Ex ib IIC T1-T5
F300 *****(2-9, A, B, D, E, Q, V, W, Y)*7***** H300 *****(2-9, A, B, D, E, Q, V, W, Y)*7*****	Ex ib IIC T1-T5

-50°C ≤ Ta ≤ +55 °C

F025(A, B, C, E)****(R, H, S, T)*I*****	Ex ib IIC T1–T6
F025(A, B, C, E)****(R, H, S, T)*I***** C.I.C. A1	Ex ib IIC T1–T6
F050(A, B, C, E)****(R, H, S, T)*I*****	Ex ib IIC T1–T6
F050(A, B, C, E)****(R, H, S, T)*I***** C.I.C. A1	Ex ib IIC T1–T6
F100(A, B, C, E)****(R, H, S, T)*I*****	Ex ib IIC T1–T6
F100(A, B, C, E)****(R, H, S, T)*I***** C.I.C. A1	Ex ib IIC T1–T6
F300(A, B, C, E)****(R, H, S, T)*I*****	Ex ib IIB T1–T6
F025(A, B, C, E)****(2,3,6,7,A,D,Q,W)*I*****	Ex ib IIC T1–T5
F025(A, B, C, E)****(2,3,6,7,A,D,Q,W)*I***** C.I.C. A1	Ex ib IIC T1–T5
F050(A, B, C, E)****(2,3,6,7,A,D,Q,W)*I*****	Ex ib IIC T1–T5
F050(A, B, C, E)****(2,3,6,7,A,D,Q,W)*I***** C.I.C. A1	Ex ib IIC T1–T5
F100(A, B, C, E)****(2,3,6,7,A,D,Q,W)*I*****	Ex ib IIC T1–T5
F100(A, B, C, E)****(2,3,6,7,A,D,Q,W)*I***** C.I.C. A1	Ex ib IIC T1–T5
F300(A, B, C, E)****(2,3,6,7,A,D,Q,W)*I*****	Ex ib IIB T1–T5

Special conditions for safe use

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

Transmitter type	Sensor type	
	F025 *****(C or F)*I***** F050 *****(C or F)*I***** F100 *****(C or F)*I***** F200 *****(C or F)*I***** F300 *****(C or F)*I***** CIC A4 F300 *****(C or F)*7***** H025 *****(C or F)*I***** H050 *****(C or F)*I***** H100 *****(C or F)*I***** H200 *****(C or F)*I***** H300 *****(C or F)*I***** CIC A4 H300 *****(C or F)*7***** R025 *****(C or F)*I***** R050 *****(C or F)*I***** R100 *****(C or F)*I***** R200 *****(C or F)*I***** CNG050 *****(C or F)*I**** F025(A, B, C or E) ****C*I***** F050(A, B, C or E) ****C*I***** F100(A, B, C or E) ****C*I***** F025(A, B, C or E) ****C*I***** CIC A1 F050(A, B, C or E) ****C*I***** CIC A1 F100(A, B, C or E) ****C*I***** CIC A1	F300 *****(C or F)*I***** F300(A, B, C or E) ****C*I***** H300 *****(C or F)*I*****
*700*1[1)] *******	Ex ib IIB+H_2 T1-T5	Ex ib IIB T1-T5
*700*1[2)] *******	Ex ib IIC T1-T5	Ex ib IIB T1-T5
*700*1[1)] 4******	Ex ib IIB+H_2 T1-T4	Ex ib IIB T1-T4
*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.

By mounting the sensor directly to the transmitter 22**S********* the use of the unit will be modified according to the following:

	Sensor Type	
Sensor type	F025 *****(J or U)*I***** F050 *****(J or U)*I***** F100 *****(J or U)*I***** F200 *****(J or U)*I***** F300 *****(J or U)*I***** CIC A4 F300 *****(J or U)*7***** H025 *****(J or U)*I***** H050 *****(J or U)*I***** H100 *****(J or U)*I***** H200 *****(J or U)*I***** H300 *****(J or U)*I***** CIC A4 H300 *****(J or U)*7***** R025 *****(J or U)*I***** R050 *****(J or U)*I***** R100 *****(J or U)*I***** R200 *****(J or U)*I***** CNG050 *****(J or U)*I**** F025(A, B, C or E) ****J*I***** F050(A, B, C or E) ****J*I***** F100(A, B, C or E) ****J*I***** F025(A, B, C or E) ****J*I***** CIC A1 F050(A, B, C or E) ****J*I***** CIC A1 F100(A, B, C or E) ****J*I***** CIC A1	F300 *****(J or U)*I***** F300(A, B, C or E) ****J*I***** H300 *****(J or U)*I*****
Transmitter type 2200S***1******	Ex ib IIC T1-T4	Ex ib IIB T1-T4

DEKRA

DEKRA EXAM GmbH · Postfach 10 27 48 · 44727 Bochum

Micro Motion, Inc.
7070 Winchester Circle
Boulder, Co. 80301
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	09.03.2011
Our reference:	BVS-Schu/Her A 20110052
Your sign:	H. van Holland
Your reference:	21.01.2011

Dear Sir or Madame,

we added the Revision Report as of 09.03.2011 to the Test and Assessment Report DE/BVS/06/2073.

We confirm, that the Certificate

IECEx BVS 06.0005 X as of 2006-07-04, last modification as of 2009-12-11

must not be modified and is valid unchanged.

Yours sincerely
DEKRA EXAM GmbH

i.V. Franz Eickhoff i.V. Michael Wittler

Dr. Franz Eickhoff Dr. Michael Wittler

Enclosures

DEKRA

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	29.06.2011
Our reference:	BVS-Schu/Her A 20110442
Your sign:	H. van Holland
Your reference:	11.05.2011

Dear Sir or Madame,

we added the Revision Report as of 30.06.2011 to the Test and Assessment Report DE/BVS/06/2073.

We confirm, that the Certificate

IECEx BVS 06.0005 X as of 04.07.2006, last modification as of 11.12.2009

is still valid.

Yours sincerely
DEKRA EXAM GmbH

i.V. Franz Eickhoff
Dr. Franz Eickhoff

i.V. Wittler
Dr. Michael Wittler

Enclosures Revision Report
Descriptive documents

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 06.0005X issue No.:3	Certificate history: Issue No. 3 (2013-8-13) Issue No. 2 (2009-12-11) Issue No. 1 (2007-8-1) Issue No. 0 (2006-7-4)
Status:	**Current**	
Date of Issue:	**2013-08-13** Page 1 of 4	

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

Electrical Apparatus: **Sensor type F*** **********, H*** **********, R*** **********, CNG050**********
Optional accessory:

Type of Protection: **Intrinsic safety**

Marking: Ex ib IIB/IIC T1 – T4 / T5 / T6 Gb

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

Position: Head of Certification Body

Signature:
(for printed version)

Date: 13.8.2013

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 06.0005X

Date of Issue: **2013-08-13** Issue No.: **3**

Manufacturer:

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

Additional Manufacturing location(s):

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

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

Emerson Process Management Flow B.V.
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

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

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

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
DE/BVS/ExTR06.0037/03

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 06.0005X

Date of Issue: **2013-08-13** Issue No.: **3**

Schedule

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

Subject and type:
See Annex

Description:
See Annex

Parameters:
See Annex

Marking:
See Annex

CONDITIONS OF CERTIFICATION: YES as shown below:

Special conditions for safe use:
See Annex

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 06.0005X

Date of Issue: **2013-08-13** Issue No.: **3**

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

The sensor can be modified:

• Some temperature graphs have been modified (correct F/H/R100 J-Box Temperature Diagram T6 Ambient temperature limit and new Temperature Diagrams for F/H/R025 and F/H/R/CNG050 to -100C minimum Ambient and Process Fluid Temperature)

• The series resistors for the drive coil of types F025(A,B,C,E), F050(A,B,C,E) and F100(A,B,C,E) have been modified (from 3W to 7W).

• A modified junction box can be used (covered in IECEx BVS 09.0022 U).

• Replace Flex Conduit with Rigid Goblet Extender on High Temp Sensors

Also the sensor has been assessed in acc. with the actual standard versions; a modified marking is the result.

Annex: BVS_06_0005X_Micro_Motion_Annex_issue_3_.pdf

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 06.0005 X issue 3**
Annex

Subject and Type
Sensor type F*** *******(I,7)*****
H*** *******(I,7)*****
R*** *******(I,7)*****
CNG050*******(I,7)****

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

Type F * * * * * * * * * * * * * * *
H * * * * * * * * * * * * * * *
R * * * * * * * * * * * * * * *
CNG 0 5 0 * * * * * * * * * * *

Marking without influence to the type of protection

Approval
I = IECEx Zone 1
7 = IECEx Zone 1; F300for gas group IIC

Letter for conduit connections

Letter for electronic interface
2 = aluminium enhanced core processor
3 = stainless enhanced core processor
4 = aluminium enhanced core processor with extender
5 = stainless enhanced core processor with extender
6 = aluminium enhanced core processor for direct host
7 = stainless enhanced core processor for direct host
8 = aluminium enhanced core processor with extender for dir
9 = stainless enhanced core processor with extender for direc
A = local core processor
B = local core processor with extender
C = integral 1700/2700
F = integral 1700/2700 with extender
D = local core processor for direct host
E = local core processor with extender for direct host
R = with junction box for 9-wire
H = 9 wire junction box with extender
Q = aluminium core processor
V = aluminium core processor with extender
W = aluminium core processor for direct host
Y = aluminium core processor with extender for direct host
S = 9-wire stainless junction box
T = 9-wire Stainless junction box with extender
J = integral 2200S
U = integral 2200S with extender

Marking without influence to the type of protection

A = High Temp. Stainless Steel Tube 350 °C
B = High Temp. HY Tube 350 °C
C = High Temp. Stainless Steel Tube 427 °C
E = High Temp. HY Tube 427 °C
Other marking without influence to the type of protection

3 numerals for type of sensor

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 06.0005 X issue 3**
Annex

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.

- When used with an integral mounted junction box (IECEx BVS 09.0022 U), this variation gets the denomination F/H/R/CNG********(S or T)******* for a SS enclosure and F/H/R/CNG********(R or H)******* for an aluminum enclosure.

- When used with an integral mounted signal processing device type 700 (IECEx BVS 04.0002 U), this variation gets the denomination type F/H/R/CNG********(A, B, D, or E)******* for a SS enclosure and F/H/R/CNG********(Q, V, W or Y)******* for an aluminum enclosure.

- When used with an integral mounted enhanced signal processing device type 800 (IECEx BVS 95.0010 U), this variation gets the denomination type F/H/R/CNG********(3, 5, 7 or 9)******* for a SS enclosure and F/H/R/CNG********(2, 4, 6 or 8)******* for an aluminum enclosure.

- The high temperature version F***(A, B, C or E)********** can be executed with a junction box or transmitter or core processor/enhanced core processor; this variation has therefore always the denomination F***(A, B, C or E)**********.

or

Parameters

3.1 Type F********(R,H,S,T)******* except F***(A,B,C,E)****(R,S)*******
H********(R,H,S,T)*******
R********(R,H,S,T)*******
CNG050*****(R,H,S,T)******

3.1.1. 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			Negligible	

Sensor type			Inductance [mH]	Coil Resistance [Ω]	Series Resistor [Ω]	Minimum Ambient/Fluid Temp [°C]
F025*****(R,H,S,T)*I***** H025*****(R,H,S,T)*I***** R025*****(R,H,S,T)*I*****		IIC	7.5	68.57	568.63	-100 °C
F050*****(R,H,S,T)*I***** H050*****(R,H,S,T)*I***** R050*****(R,H,S,T)*I***** CNG050*****(R,H,S,T)*I****		IIC	7.5	68.57	568.63	-100 °C
F100*****(R,H,S,T)*I***** H100*****(R,H,S,T)*I***** R100*****(R,H,S,T)*I*****		IIC	7.5	77.27	71.1	-83 °C
F200*****(R,H,S,T)*I***** H200*****(R,H,S,T)*I***** R200*****(R,H,S,T)*I*****		IIC	9.4	18.43	148.03	-138 °C
F300*****(R,H,S,T)*I***** H300*****(R,H,S,T)*I*****		IIB	11.75	83.5	7.9	-40 °C
F300*****(R,H,S,T)*I***** CIC A4 H300*****(R,H,S,T)*I***** CIC A4		IIC	11.75	57.8	129	-100 °C
F300*****(R,H,S,T)*7***** H300*****(R,H,S,T)*7*****		IIC	11.75	57.8	129	-100 °C

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

Voltage	Ui	DC	21.13	V
Current	Ii		18.05	mA
Power	Pi		45	mW
Effective internal capacitance	Ci		Negligible	

Sensor type			Inductance [mH]	Coil Resistance [Ω]	Series Resistor [Ω]	Minimum Ambient/Fluid Temp [°C]
F025*****(R,H,S,T)*I***** H025*****(R,H,S,T)*I***** R025*****(R,H,S,T)*I*****		IIC	7.5	68.57	0-568.63	-100 °C
F050*****(R,H,S,T) I***** H050*****(R,H,S,T)*I***** R050*****(R,H,S,T)*I***** CNG050*****(R,H,S,T)*I****		IIC	7.5	68.57	0-568.63	-100 °C
F100*****(R,H,S,T)*I***** H100*****(R,H,S,T)*I***** R100*****(R,H,S,T)*I*****		IIC	7.5	77.27	0-568.83	-83 °C
F200*****(R,H,S,T)*I***** H200*****(R,H,S,T)*I***** R200*****(R,H,S,T)*I*****		IIC	12.4	63.21	0-568.19	-138 °C
F300*****(R,H,S,T)*I***** H300*****(R,H,S,T)*I*****		IIB	12.4	128.4	0-569.3	-40 °C
F300*****(R,H,S,T)*I***** CIC A4 H300*****(R,H,S,T)*I***** CIC A4		IIC	12.4	88.6	0-568.63	-100 °C
F300*****(R,H,S,T)*7***** H300*****(R,H,S,T)*7*****		IIC	12.4	88.6	0-568.63	-100 °C

3.1.3 Temperature circuit (terminals 3, 4 and 7 or wires orange, yellow and violet)

Voltage	Ui	DC	21.13	V
Current	Ii		26	mA
Power	Pi		112	mW
Effective internal capacitance	Ci		Negligible	
Effective internal inductance	Li		Negligible	

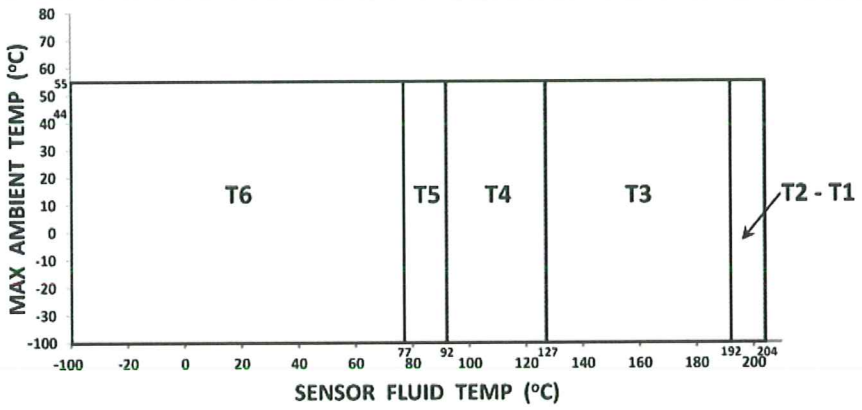
Identification resistor circuit (terminals 3 & 4 or wires orange and yellow)

Sensor type	Inductance [mH]	Coil resistance [Ω]	Serial resistor [Ω]	Minimum Ambient/Fluid Temperature [°C]
F300*****(R,H,S,T)*I*****	N/A	N/A	42.2 to 44.3	-40 °C
F300*****(R,H,S,T)*I***** CIC A4	N/A	N/A	42.2 to 44.3	-100 °C
F300*****(R,H,S,T)*7*****	N/A	N/A	42.2 to 44.3	-100 °C
H300*****(R,H,S,T)*I*****	N/A	N/A	42.2 to 44.3	-40 °C
H300*****(R,H,S,T)*I***** CIC A4	N/A	N/A	42.2 to 44.3	-100 °C
H300*****(R,H,S,T)*7*****	N/A	N/A	42.2 to 44.3	-100 °C

3.1.4 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 graphs:

3.1.4.1

Sensor type		
F025*****(R,H,S,T)*I***** H025*****(R,H,S,T)*I***** R025*****(R,H,S,T)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000MVD series
F050*****(R,H,S,T)*I***** H050*****(R,H,S,T)*I***** R050*****(R,H,S,T)*I***** CNG050*****(R,H,S,T)*I****	IIC	



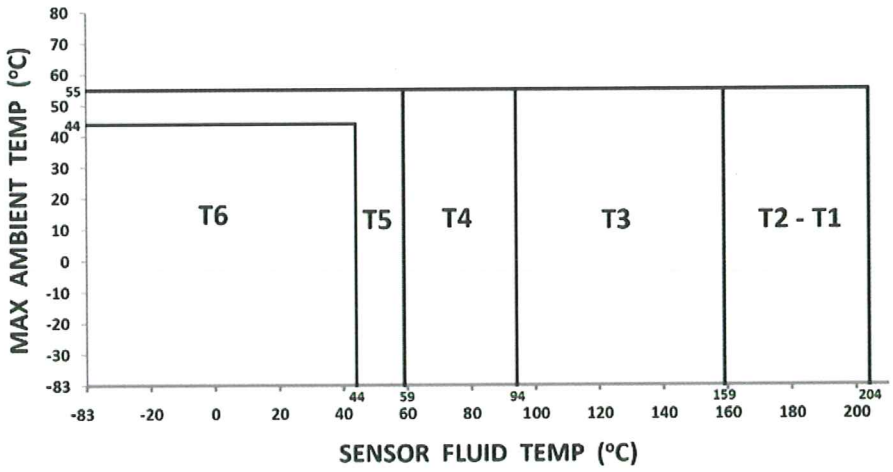
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta -100 °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.

3.1.4.2

Sensor type		
F100*****(R,H,S,T)*I***** H100*****(R,H,S,T)*I***** R100*****(R,H,S,T)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000MVD series



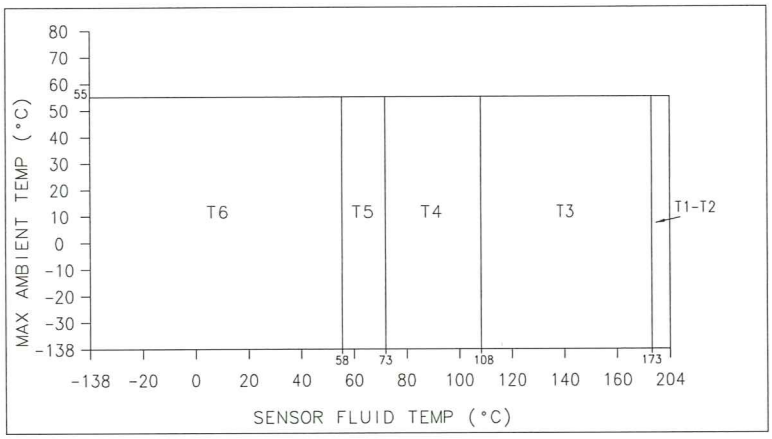
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta –83 °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.

3.1.4.3

Sensor type		
F200*****(R,H,S,T)*I***** H200*****(R,H,S,T)*I***** R200*****(R,H,S,T)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000MVD series



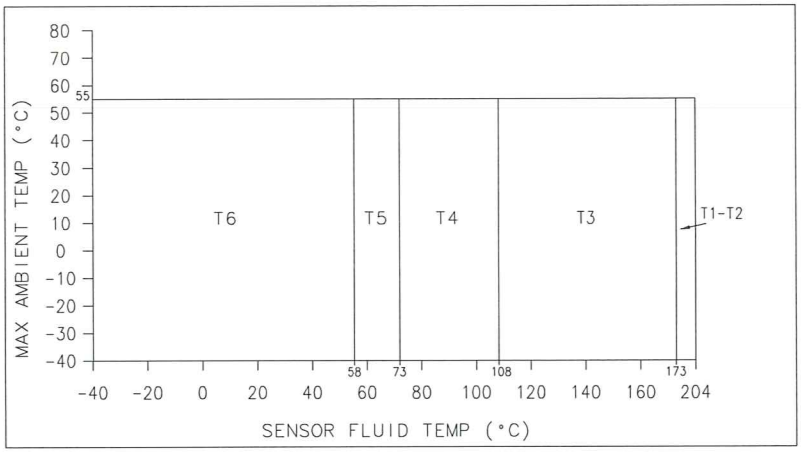
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta –138 °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.

3.1.4.4

Sensor type		
F300*****(R,H,S,T)*I***** H300*****(R,H,S,T)*I*****	IIB	Connected to MVD transmitters, e.g. 1000/2000/3000MVD series



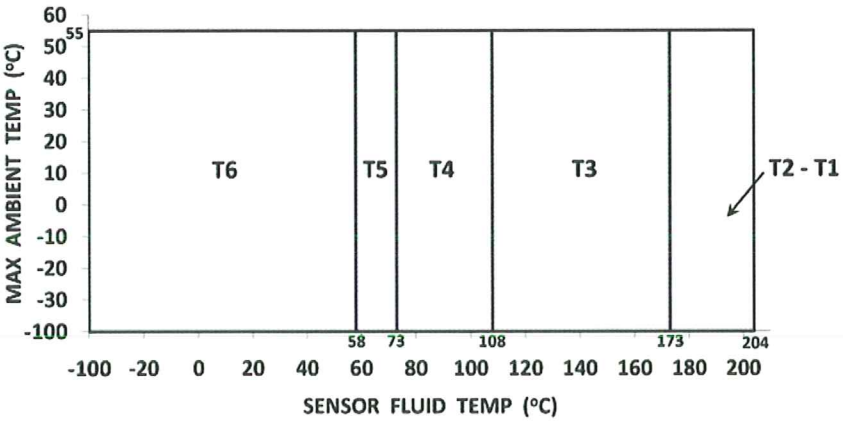
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta –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.

3.1.4.5

Sensor type		
F300*****(R,H,S,T)*I***** CIC A4 H300*****(R,H,S,T)*I***** CIC A4	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000MVD series
F300*****(R,H,S,T)*7***** H300*****(R,H,S,T)*7*****	IIC	



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

Ambient temperature range Ta –100 °C up to +55 °C

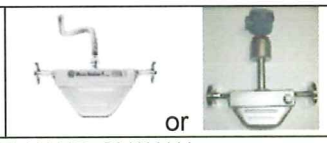
The use of the sensor at higher ambient temperature than +55 °C is possible, provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

3.1.4.6 All sensors listed in cl. 3.1.4 can also be executed with the alternate junction box assemblies covered in IECEx BVS 09.0022U.

3.2 Type F***(A,B,C,E)****(R,S)******* with J-box.

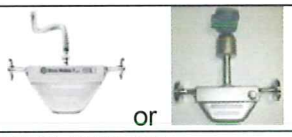
3.2.1 Drive circuit (connections 1 - 2 or wires red and brown)

Voltage	Ui	DC	11.4	V
Current	Ii		2.45	A
Power	Pi		2.54	W
Effective internal capacitance	Ci		Negligible	

Sensor type  or		Inductance [mH]	Coil Resistance [Ω]	Series Resistor [Ω]	Minimum Ambient/Fluid Temp [°C]
F025(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	55.3	-50
F025(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	38.5	-50
F050(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	55.3	-50
F050(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	38.5	-50
F100(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	55.3	-50
F100(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	38.3	-50
F300(A,B,C,E)****(R,S)*I*****	IIB	7.75	54.3	19.8	-50

3.2.2 Pick-off circuit (Terminals 5/9 and 6/8 or wires green/white and blue/grey)

Voltage	Ui	DC	21.13	V
Current	Ii		18.05	mA
Power	Pi		45	mW
Effective internal capacitance	Ci		Negligible	

Sensor type  or		Inductance [mH]	Coil Resistance [Ω]	Series Resistor [Ω]	Minimum Ambient/Fluid Temp [°C]
F025(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	0-569.2	-50
F025(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	0-569.2	-50
F050(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	0-569.2	-50
F050(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	0-569.2	-50
F100(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	0-569.2	-50
F100(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	0-569.2	-50
F300(A,B,C,E)****(R,S)*I*****	IIB	6.5	41.1	0-569.2	-50

3.2.3 Temperature circuit (terminals 3, 4 and 7 or wires orange, yellow and violet)

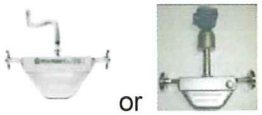
Voltage	Ui	DC	21.13	V
Current	Ii		26	mA
Power	Pi		112	mW
Effective internal capacitance	Ci		Negligible	
Effective internal inductance	Li		Negligible	

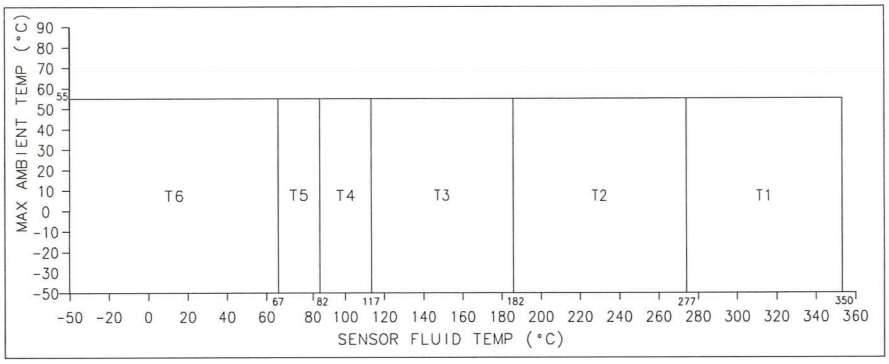
Identification resistor circuit (terminals 3 & 4 or wires orange and yellow)

Sensor type	Inductance [mH]	Coil resistance [Ω]	Serial resistor [Ω]	Minimum Ambient/ Fluid Temperature [°C]
F025(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50 °C
F025(A,B,C,E)****(R,S)*I***** C.I.C. A1	N/A	N/A	42.2 to 44.3	-50 °C
F050(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50 °C
F050(A,B,C,E)****(R,S)*I***** C.I.C. A1	N/A	N/A	42.2 to 44.3	-50 °C
F100(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50 °C
F100(A,B,C,E)****(R,S)*I***** C.I.C. A1	N/A	N/A	42.2 to 44.3	-50 °C
F300(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50 °C

3.2.4 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 graphs:

3.2.4.1

Sensor type	 or	
F025(A,B)****(R,S)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000MVD series
F025(A,B)****(R,S)*I***** CIC A1	IIC	
F050(A,B)****(R,S)*I*****	IIC	
F050(A,B)****(R,S)*I***** CIC A1	IIC	
F100(A,B)****(R,S)*I*****	IIC	
F100(A,B)****(R,S)*I***** CIC A1	IIC	
F300(A,B)****(R,S)*I*****	IIB	



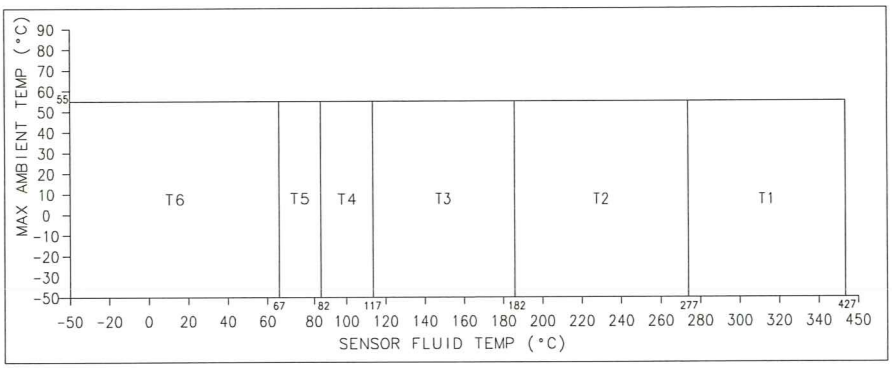
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta -50 °C up to +55 °C

The use of the sensor at higher ambient temperature 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.

3.2.4.2

Sensor type	 or	
F025(C,E)****(R,S)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000MVD series
F025(C,E)****(R,S)*I***** CIC A1	IIC	
F050(C,E)****(R,S)*I*****	IIC	
F050(C,E)****(R,S)*I***** CIC A1	IIC	
F100(C,E)****(R,S)*I*****	IIC	
F100(C,E)****(R,S)*I***** CIC A1	IIC	
F300(C,E)****(R,S)*I*****	IIB	



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

Ambient temperature range Ta –50 °C up to +55 °C

The use of the sensor at higher ambient temperature 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.

3.2.4.3 All sensors listed in cl. 3.2.4 can also be executed with the alternate junction box assemblies covered in IECEx BVS 09.0022U.

3.3 Type F********(2-9,A,B,D,E,Q,V,W or Y)******* with integral core-processor, H********(2-9,A,B,D,E,Q,V,W or Y)*******, R********(2-9,A,B,D,E,Q,V,W or Y)*******, CNG050*****(2-9,A,B,D,E,Q,V,W or Y)****** except type F***(A,B,C,E)****(2,3,6,7,A,D,Q,W)*******

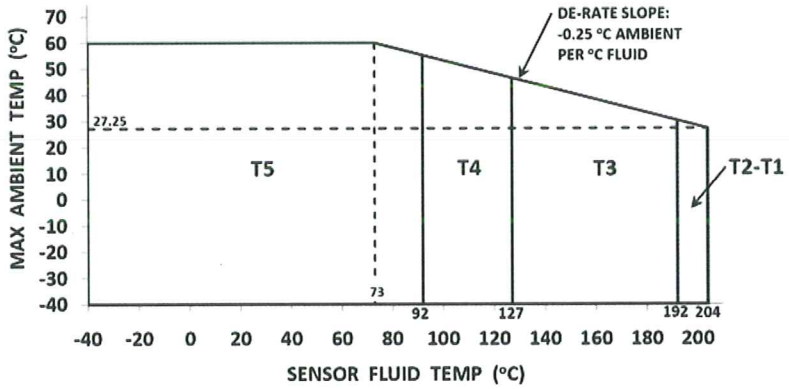
3.3.1 Input circuits (terminals 1-4)

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

3.3.2 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 are shown in the following graphs:

3.3.2.1

Sensor type			
F025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****		IIC	With integral core processor
F050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CNG050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I****		IIC	

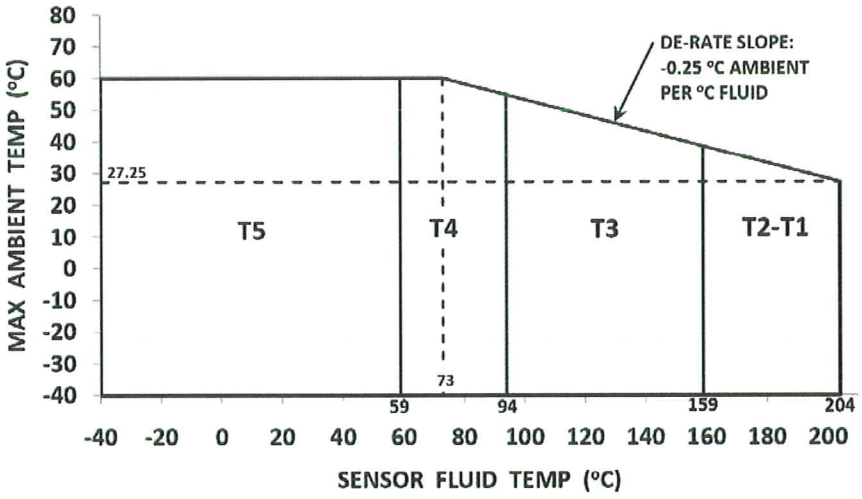


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta –40 °C up to +60 °C

3.3.2.2

Sensor type		
F100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	IIC	With integral core processor

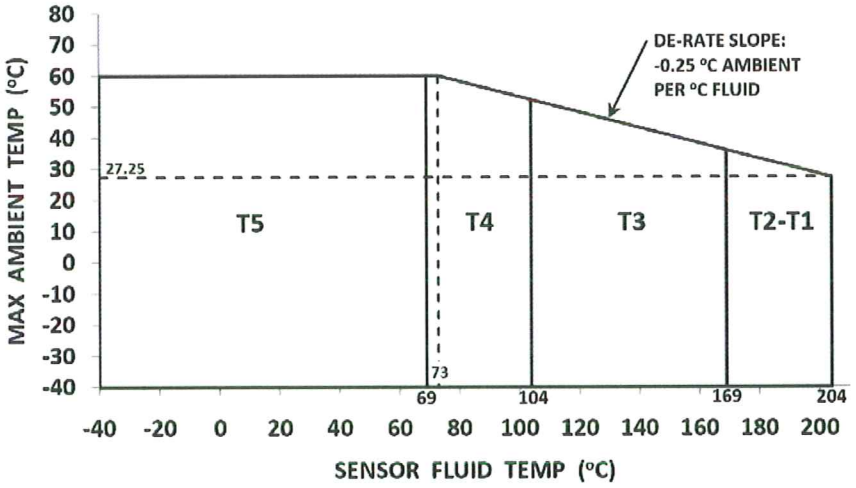


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range	Ta	–40 °C up to +60 °C

3.3.2.3

Sensor type		
F200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	IIC	With integral core processor

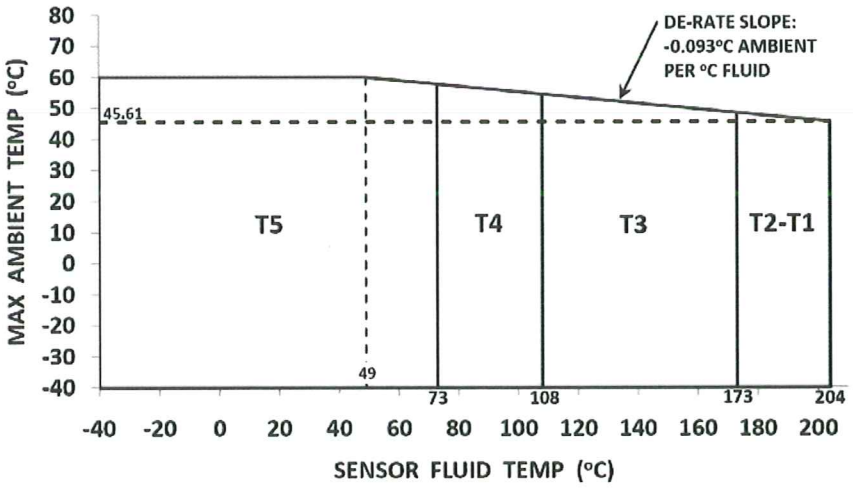


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range	Ta	–40 °C up to +60 °C

3.3.2.4

Sensor type		
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	IIB	With integral core processor
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A4 H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A4	IIC	
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*7***** H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*7*****	IIC	



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

Ambient temperature range	Ta	–40 °C up to +60 °C

3.4 Type F***(A,B,C,E)****(2,3,6,7,A,D,Q,W)******* with integral core processor.


or

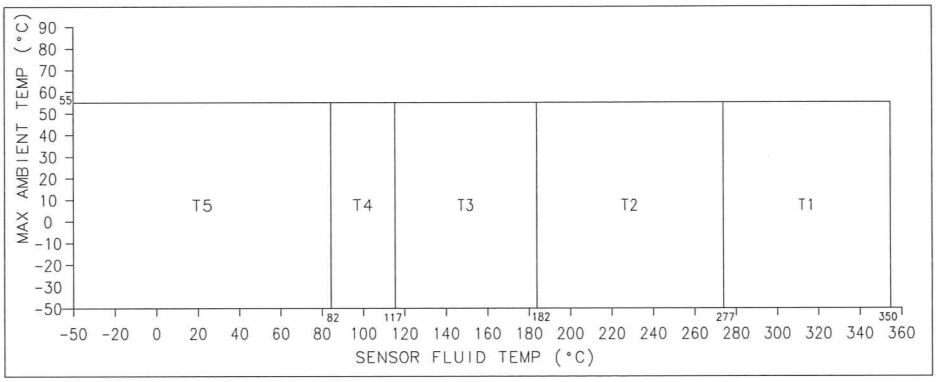

3.4.1 Input circuits (terminals 1-4)

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

3.4.2 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 graphs:

3.4.2.1

Sensor type	 or 	
F025(A,B)****(2,3,6,7,A,D,Q,W)*I*****	IIC	With integral core processor
F025(A,B)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	IIC	
F050(A,B)****(2,3,6,7,A,D,Q,W)*I*****	IIC	
F050(A,B)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	IIC	
F100(A,B)****(2,3,6,7,A,D,Q,W)*I*****	IIC	
F100(A,B)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	IIC	
F300(A,B)****(2,3,6,7,A,D,Q,W)*I*****	IIB	



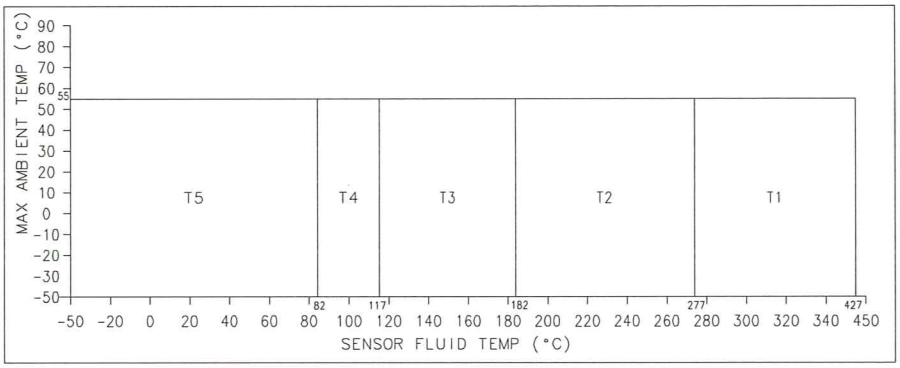
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta -50 °C up to +55 °C

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, 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.

3.4.2.2

Sensor type	 or 	
F025(C,E)****(2,3,6,7,A,D,Q,W)*I*****	IIC	With integral core processor
F025(C,E)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	IIC	
F050(C,E)****(2,3,6,7,A,D,Q,W)*I*****	IIC	
F050(C,E)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	IIC	
F100(C,E)****(2,3,6,7,A,D,Q,W)*I*****	IIC	
F100(C,E)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	IIC	
F300(C,E)****(2,3,6,7,A,D,Q,W)*I*****	IIB	



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

Ambient temperature range Ta –50 °C up to + 55 °C

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, 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.

3.5 Type F********(J,U)*******, H********(J,U)*******, R********(J,U)*******, CNG050*****(J,U)****** with 2200S transmitter except type F***(A,B,C,E)****J*******

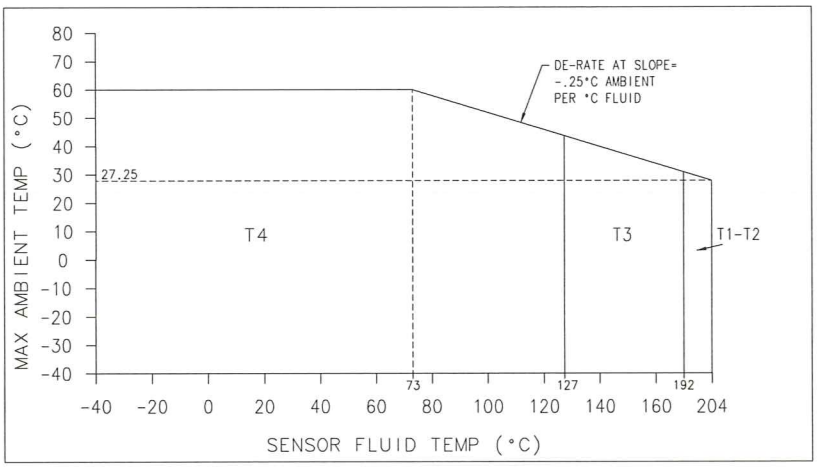
3.5.1 Input circuits (terminals 1-(3,4,5)

Voltage	Ui	DC	28	V
Current	Ii		120	mA
Power	Pi		0.84	W
Effective internal capacitance	Ci		2200	pF
Effective internal inductance	Li		45	µH

3.5.2 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 are shown in the following graphs:

3.5.2.1

Sensor type		
F025*****(J,U)*I***** H025*****(J,U)*I***** R025*****(J,U)*I*****	IIC	With integral 2200S
F050*****(J,U)*I***** H050*****(J,U)*I***** R050*****(J,U)*I***** CNG050*****(J,U)*I****	IIC	

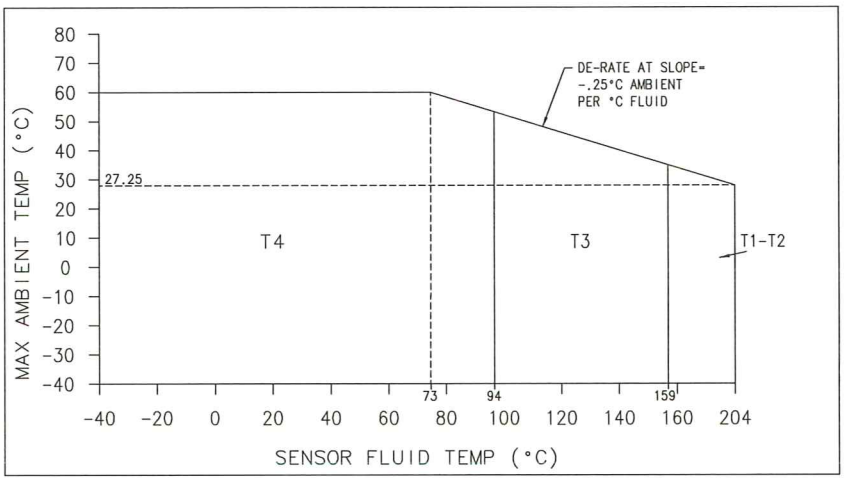


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

3.5.2.2

Sensor type		
F100*****(J,U)*I***** H100*****(J,U)*I***** R100*****(J,U)*I*****	IIC	With integral 2200S

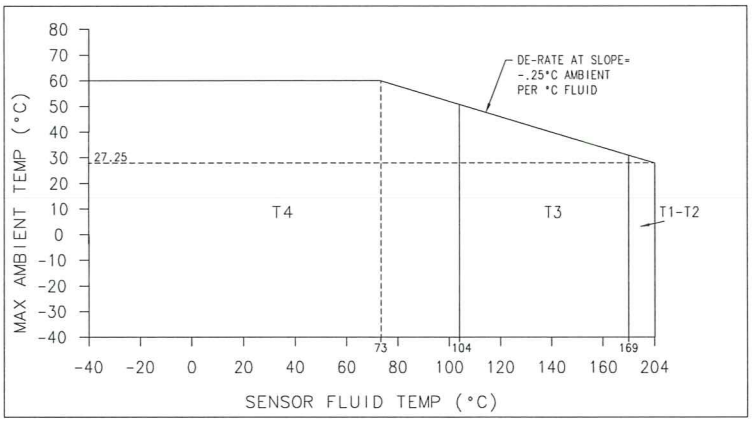


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

3.5.2.3

Sensor type		
F200*****(J,U)*I***** H200*****(J,U)*I***** R200*****(J,U)*I*****	IIC	With integral 2200S

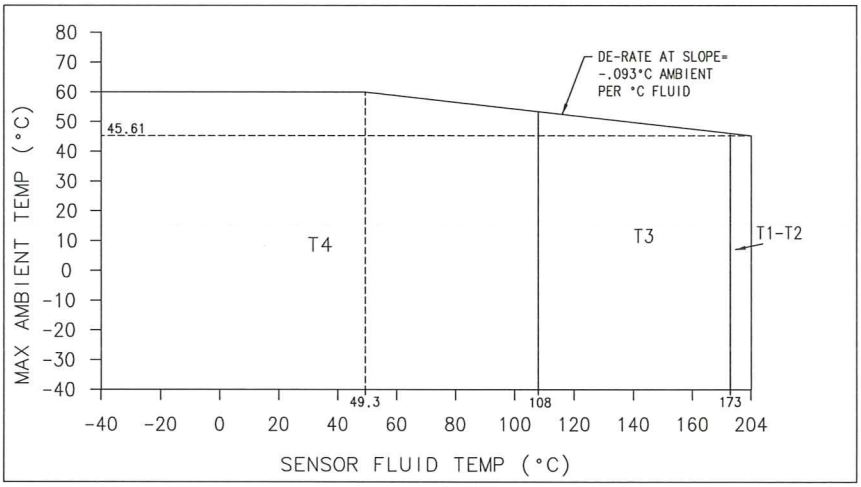


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

3.5.2.4

Sensor type		
F300*****(J,U)*I***** H300*****(J,U)*I*****	IIB	With integral 2200S
F300*****(J,U)*I***** CIC A4 H300*****(J,U)*I***** CIC A4	IIC	
F300*****(J,U)*7***** H300*****(J,U)*7*****	IIC	



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

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

3.6 Type F***(A,B,C,E)****J******* with integral 2200S transmitter


or

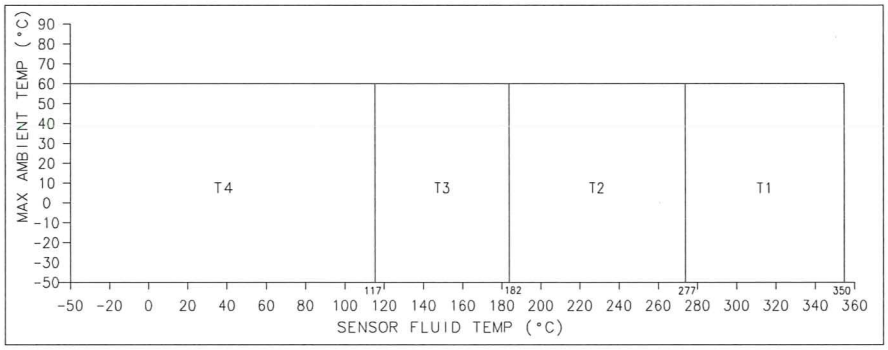

3.6.1 Input circuits (terminals 1-(3,4,5)

Voltage	Ui	DC	28	V
Current	Ii		120	mA
Power	Pi		0.84	W
Effective internal capacitance	Ci		2200	pF
Effective internal inductance	Li		45	µH

3.6.2 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 graphs:

3.6.2.1

Sensor type	 or 	
F025(A,B)****J*I*****	IIC	With integral 2200S
F025(A,B)****J*I***** CIC A1	IIC	
F050(A,B)****J*I*****	IIC	
F050(A,B)****J*I***** CIC A1	IIC	
F100(A,B)****J*I*****	IIC	
F100(A,B)****J*I***** CIC A1	IIC	
F300(A,B)****J*I*****	IIB	



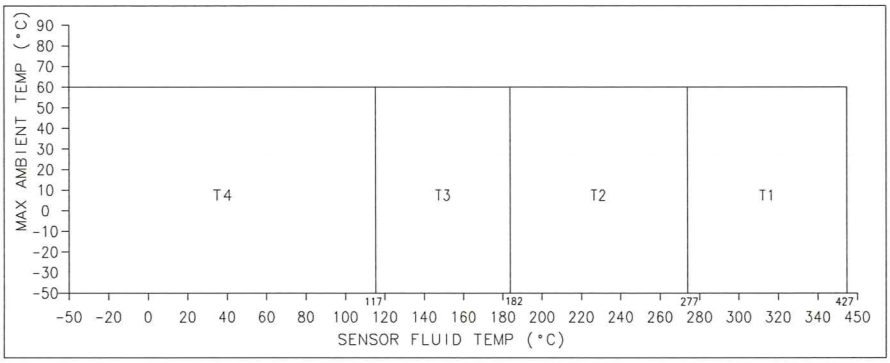
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta -50 °C up to +60 °C

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, the use of the sensor at an ambient temperature higher than +60 °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.

3.6.2.2

Sensor type	 or 	
F025(C,E)****J*I*****	IIC	With integral 2200S
F025(C,E)****J*I***** CIC A1	IIC	
F050(C,E)****J*I*****	IIC	
F050(C,E)****J*I***** CIC A1	IIC	
F100(C,E)****J*I*****	IIC	
F100(C,E)****J*I***** CIC A1	IIC	
F300(C,E)****J*I*****	IIB	



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

Ambient temperature range Ta –50 °C to +60 °C

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, the use of the sensor at an ambient temperature higher than +60 °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.

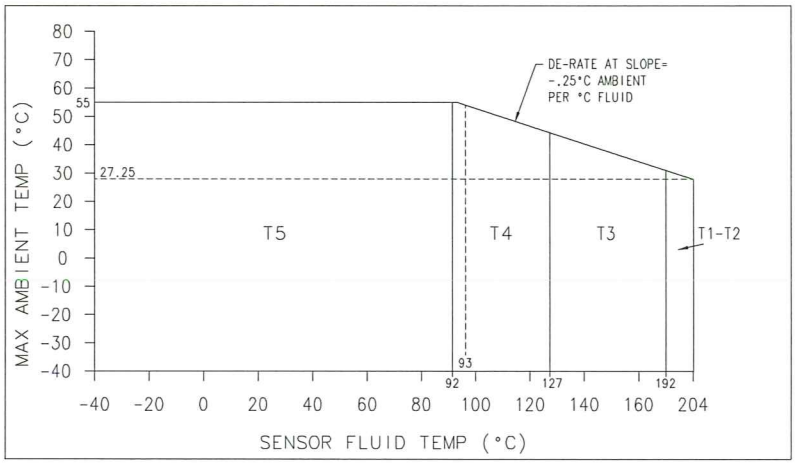
3.7 Type F********(C,F)*I*****, H********(C,F)*I***** ,R********(C,F)*I*****, CNG050*****(C,F)*I**** except Type F***(A,B,C,E)****C*I*****

3.7.1 Electrical parameters see IECEx BVS 04.0006X for the transmitter type *700**********

3.7.2 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 graphs:

3.7.2.1

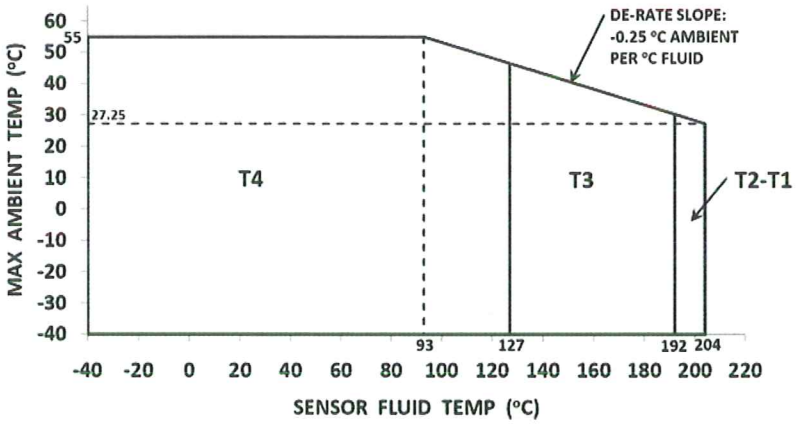
Sensor type	
F025*****(C,F)*I***** H025*****(C,F)*I***** R025*****(C,F)*I*****	IIC
F050*****(C,F)*I***** H050*****(C,F)*I***** R050*****(C,F)*I***** CNG050*****(C,F)*I****	IIC



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

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

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

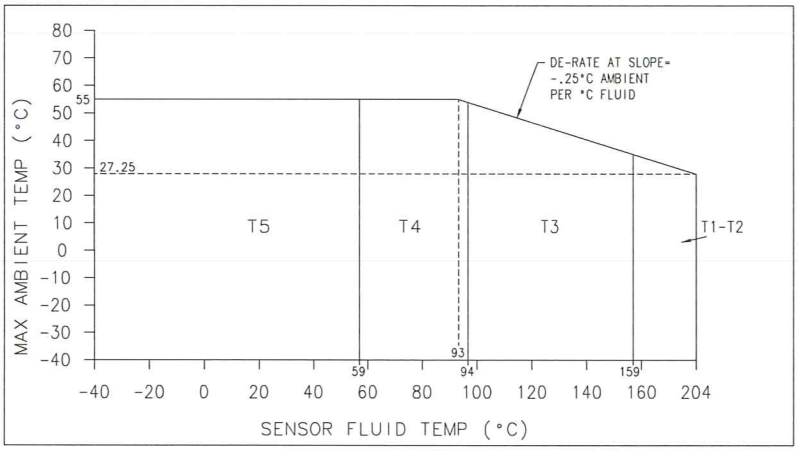


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

3.7.2.2

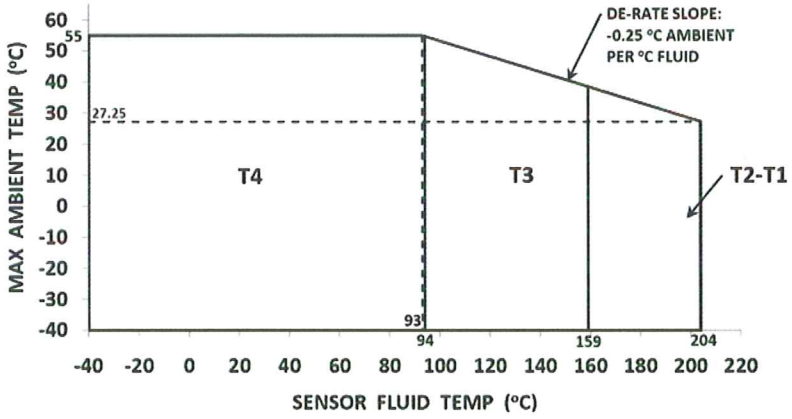
Sensor type	
F100*****(C,F)*I***** H100*****(C,F)*I***** R100*****(C,F)*I*****	IIC



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

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

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

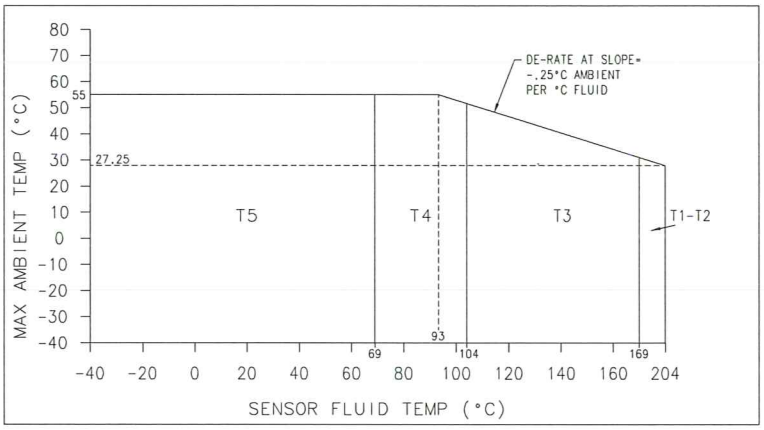


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

3.7.2.3

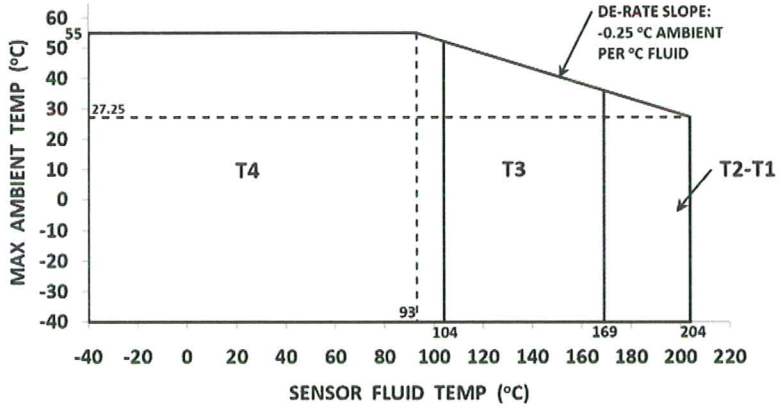
Sensor type	
F200*****(C,F)*I***** H200*****(C,F)*I***** R200*****(C,F)*I*****	IIC



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

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

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

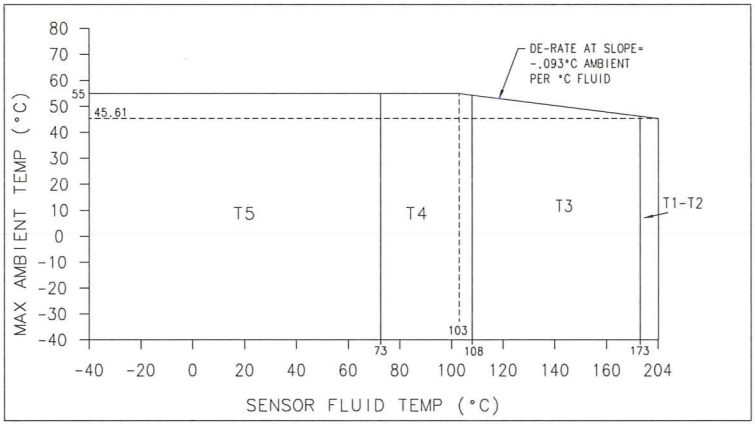


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

3.7.2.4

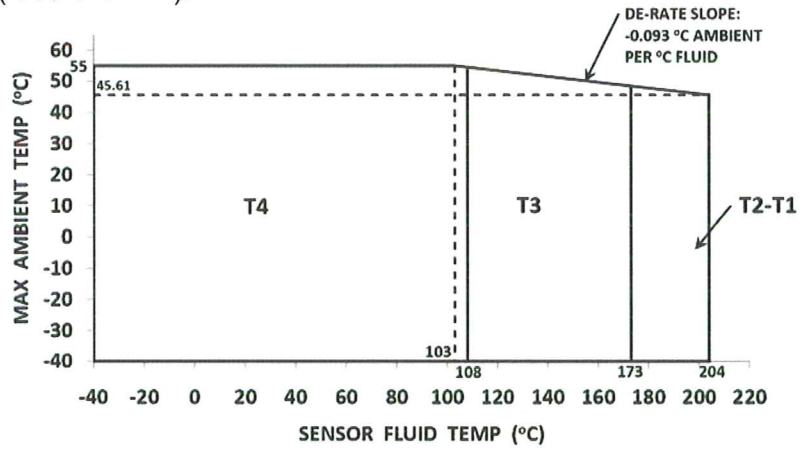
Sensor type	
F300*****(C,F)*I***** H300*****(C,F)*I*****	IIB
F300*****(C,F)*I***** CIC A4 H300*****(C,F)*I***** CIC A4	IIC
F300*****(C,F)*7***** H300*****(C,F)*7*****	IIC



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

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

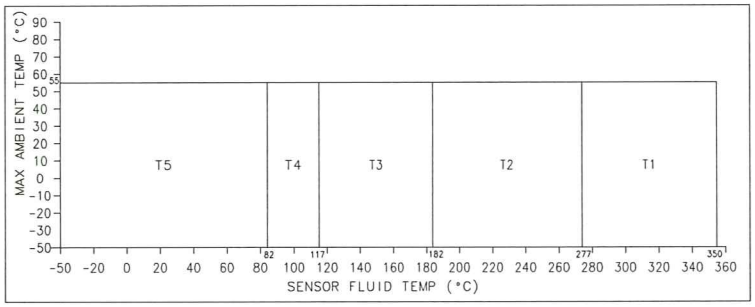
3.8 Type F***(A,B,C,E)****C*I*****

3.8.1 Electrical parameters see IECEx BVS 04.0006X for the transmitter type *700**********

3.8.2 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 graphs:

3.8.2.1

Sensor type	 or 
F025(A,B)****C*I*****	IIC
F025(A,B)****C*I***** CIC A1	IIC
F050(A,B)****C*I*****	IIC
F050(A,B)****C*I***** CIC A1	IIC
F100(A,B)****C*I*****	IIC
F100(A,B)****C*I***** CIC A1	IIC
F300(A,B)****C*I*****	IIB

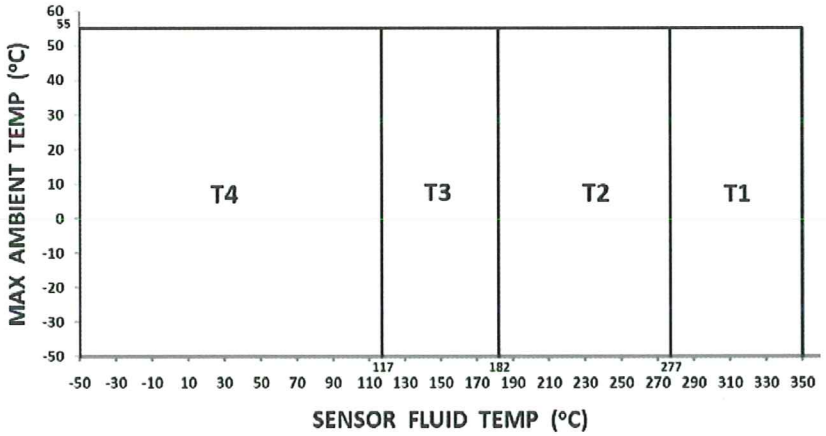


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta –50 °C up to +55 °C

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, 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.

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



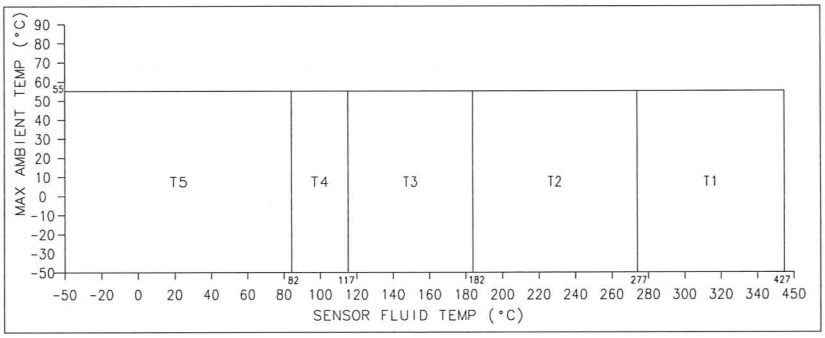
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta –50 °C up to +55 °C

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, 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.

3.8.2.2

Sensor type	 or 
F025(C,E)****C*I*****	IIC
F025(C,E)****C*I***** CIC A1	IIC
F050(C,E)****C*I*****	IIC
F050(C,E)****C*I***** CIC A1	IIC
F100(C,E)****C*I*****	IIC
F100(C,E)****C*I***** CIC A1	IIC
F300(C,E)****C*I*****	IIB

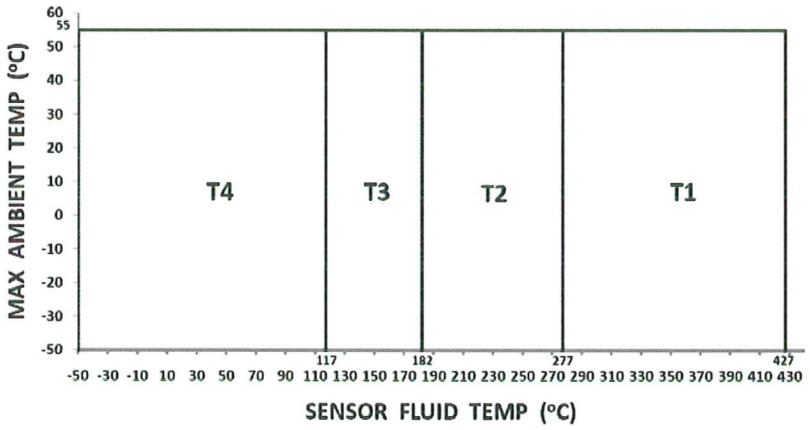


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta –50 °C up to +55 °C

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, 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.

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	Ta	–50 °C up to +55 °C

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, 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.

Marking

Type	Type of protection	Ambient temperature range
F025*****(R,H,S,T)*I***** H025*****(R,H,S,T)*I***** R025*****(R,H,S,T)*I*****	Ex ib IIC T1-T6 Gb	-100 °C ≤ Ta ≤ +55 °C
F050*****(R,H,S,T)*I***** H050*****(R,H,S,T)*I***** R050*****(R,H,S,T)*I***** CNG050*****(R,H,S,T)*I****	Ex ib IIC T1-T6 Gb	-100 °C ≤ Ta ≤ +55 °C
F100*****(R,H,S,T)*I***** H100*****(R,H,S,T)*I***** R100*****(R,H,S,T)*I*****	Ex ib IIC T1-T6 Gb	-83 °C ≤ Ta ≤ +55 °C
F200*****(R,H,S,T)*I***** H200*****(R,H,S,T)*I***** R200*****(R,H,S,T)*I*****	Ex ib IIC T1-T6 Gb	-138 °C ≤ Ta ≤ +55 °C
F300*****(R,H,S,T)*I***** H300*****(R,H,S,T)*I*****	Ex ib IIB T1-T6 Gb	-40 °C ≤ Ta ≤ +55 °C
F300*****(R,H,S,T)*I***** CIC A4 H300*****(R,H,S,T)*I***** CIC A4	Ex ib IIC T1-T6 Gb	-100 °C ≤ Ta ≤ +55 °C
F300*****(R,H,S,T)*7***** H300*****(R,H,S,T)*7*****	Ex ib IIC T1-T6 Gb	-100 °C ≤ Ta ≤ +55 °C
F025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	Ex ib IIC T1-T5 Gb	-40 °C ≤ Ta ≤ +60 °C
F050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CNG050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I****	Ex ib IIC T1-T5 Gb	-40 °C ≤ Ta ≤ +60 °C
F100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	Ex ib IIC T1-T5 Gb	-40 °C ≤ Ta ≤ +60 °C
F200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	Ex ib IIC T1-T5 Gb	-40 °C ≤ Ta ≤ +60 °C
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	Ex ib IIB T1-T5 Gb	-40 °C ≤ Ta ≤ +60 °C
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A4 H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A4	Ex ib IIC T1-T5 Gb	-40 °C ≤ Ta ≤ +60 °C
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*7***** H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*7*****	Ex ib IIC T1-T5 Gb	-40 °C ≤ Ta ≤ +60 °C
F025(A,B,C,E)****(R,S)*I*****	Ex ib IIC T1-T6 Gb	-50 °C ≤ Ta ≤ +55 °C
F025(A,B,C,E)****(R,S)*I***** CIC A1	Ex ib IIC T1-T6 Gb	-50 °C ≤ Ta ≤ +55 °C
F050(A,B,C,E)****(R,S)*I*****	Ex ib IIC T1-T6 Gb	-50 °C ≤ Ta ≤ +55 °C
F050(A,B,C,E)****(R,S)*I***** CIC A1	Ex ib IIC T1-T6 Gb	-50 °C ≤ Ta ≤ +55 °C
F100(A,B,C,E)****(R,S)*I*****	Ex ib IIC T1-T6 Gb	-50 °C ≤ Ta ≤ +55 °C
F100(A,B,C,E)****(R,S)*I***** CIC A1	Ex ib IIC T1-T6 Gb	-50 °C ≤ Ta ≤ +55 °C
F300(A,B,C,E)****(R,S)*I*****	Ex ib IIB T1-T6 Gb	-50 °C ≤ Ta ≤ +55 °C

Type	type of protection	Ambient temperature range
F025(A,B,C,E)****(2,3,6,7,A,D,Q,W)*I*****	Ex ib IIC T1-T5 Gb	-50 °C ≤ Ta ≤ +55 °C
F025(A,B,C,E)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	Ex ib IIC T1-T5 Gb	-50 °C ≤ Ta ≤ +55 °C
F050(A,B,C,E)****(2,3,6,7,A,D,Q,W)*I*****	Ex ib IIC T1-T5 Gb	-50 °C ≤ Ta ≤ +55 °C
F050(A,B,C,E)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	Ex ib IIC T1-T5 Gb	-50 °C ≤ Ta ≤ +55 °C
F100(A,B,C,E)****(2,3,6,7,A,D,Q,W)*I*****	Ex ib IIC T1-T5 Gb	-50 °C ≤ Ta ≤ +55 °C
F100(A,B,C,E)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	Ex ib IIC T1-T5 Gb	-50 °C ≤ Ta ≤ +55 °C
F300(A,B,C,E)****(2,3,6,7,A,D,Q,W)*I*****	Ex ib IIB T1-T5 Gb	-50 °C ≤ Ta ≤ +55 °C

Special conditions for safe use

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

Sensor	F025*****(C,F)*I***** F050*****(C,F)*I***** F100*****(C,F)*I***** F200*****(C,F)*I***** F300*****(C,F)*I***** CIC A4 F300*****(C,F)*7***** H025*****(C,F)*I***** H050*****(C,F)*I***** H100*****(C,F)*I***** H200*****(C,F)*I***** H300*****(C,F)*I***** CIC A4 H300*****(C,F)*7***** R025*****(C,F)*I***** R050*****(C,F)*I***** R100*****(C,F)*I***** R200*****(C,F)*I***** CNG050*****(C,F)*I**** F025(A,B,C,E)****C*I***** F050(A,B,C,E)****C*I***** F100(A,B,C,E)****C*I***** F025(A,B,C,E)****C*I***** CIC A1 F050(A,B,C,E)****C*I***** CIC A1 F100(A,B,C,E)****C*I***** CIC A1	F300 *****(C,F)*I***** F300(A,B,C,E) ****C*I***** H300 *****(C,F)*I*****
Transmitter type *700*1(1,2)*******	Ex ib IIB+H_2 T1-T5	Ex ib IIB T1-T5
Transmitter type *700*1(3,4,5)*******	Ex ib IIC T1-T5	Ex ib IIB T1-T5
Transmitter type *700*1(1,2)4******	Ex ib IIB+H_2 T1-T4	Ex ib IIB T1-T4
Transmitter type *700*1(3,4,5)4******	Ex ib IIC T1-T4	Ex ib IIB T1-T4

By mounting the sensor directly to the transmitter 22**S********* the use of the unit will be modified according to the following:

	F025*****(J,U)*I***** F050*****(J,U)*I***** F100*****(J,U)*I***** F200*****(J,U)*I***** F300*****(J,U)*I***** CIC A4 F300*****(J,U)*7***** H025*****(J,U)*I***** H050*****(J,U)*I***** H100*****(J,U)*I***** H200*****(J,U)*I***** H300*****(J,U)*I***** CIC A4 H300*****(J,U)*7***** R025*****(J,U)*I***** R050*****(J,U)*I***** R100*****(J,U)*I***** R200*****(J,U)*I***** CNG050*****(J,U)*I**** F025(A,B,C,E)****J*I***** F050(A,B,C,E)****J*I***** F100(A,B,C,E)****J*I***** F025(A,B,C,E)****J*I***** CIC A1 F050(A,B,C,E)****J*I***** CIC A1 F100(A,B,C,E)****J*I***** CIC A1	F300*****(J,U)*I***** F300(A,B,C,E)****J*I***** H300*****(J,U)*I*****
Transmitter type 2200S***1******	Ex ib IIC T1-T4	Ex ib IIB T1-T4

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 06.0005X issue No.:4	Certificate history: Issue No. 4 (2015-11-6) Issue No. 3 (2013-8-13) Issue No. 2 (2009-12-11) Issue No. 1 (2007-8-1) Issue No. 0 (2006-7-4)
Status:	**Current**	
Date of Issue:	**2015-11-06** Page 1 of 4	
Applicant:	**Micro Motion, Inc.** 7070 Winchester Circle Boulder, Co. 80301 **United States of America**	
Electrical Apparatus: *Optional accessory:*	**Sensor type F*** *************, H*** **************, R*** **************, CNG050***************	
Type of Protection:	**Equipment protection by intrinsic safety "i"**	
Marking:	Ex ib IIB/IIC T6 / T5 / T4 ... T1 Gb Ex ib IIIC T***°C Db	
Approved for issue on behalf of the IECEx Certification Body:	Dr. F. Eickhoff	
Position:	Deputy Head of Certification Body	
Signature: *(for printed version)*		
Date:	2015 - 11 - 06	

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 EXAM GmbH

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 06.0005X

Date of Issue: **2015-11-06** Issue No.: **4**

Manufacturer:

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

Additional Manufacturing location(s):

Emerson SRL
Emerson Street No 4
400641 Cluj-Napoca
Romania

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

Emerson Process Management Flow B.V.
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

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 manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

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

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
DE/BVS/ExTR06.0037/04

Quality Assessment Report:

NO/DNV/QAR07.0002/04
NO/DNV/QAR08.0005/04
NO/DNV/QAR07.0003/04
NO/DNV/QAR14.0004/00
NO/DNV/QAR07.0008/04

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 06.0005X

Date of Issue: **2015-11-06** Issue No.: **4**

Schedule

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

Subject and type:
See Annex

Description:
See Annex

Parameters:
See Annex

Marking:
See Annex

CONDITIONS OF CERTIFICATION: YES as shown below:

Special conditions for safe use:
See Annex

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 06.0005X

Date of Issue: **2015-11-06** Issue No.: **4**

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

1 New variants type F100P********** and type F100J********** have been added.
2 New variants type F********F******* have been added.
3 Goblet extensions for high temperature sensors have been added.
4 Temperature class marking have been updated.
5 Added dust application
6 Added new manufacturing location in Romania.

Annex: BVS_06_0005X_MicroMotion_Annex_issue4.pdf

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 06.0005X issue No.: 4**
Annex

Subject and Type

Sensor type F*** *******(I,7)*****
H*** *******(I,7)*****
R*** *******(I,7)*****
CNG050*******(I,7)****

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

F * * * * * * * * * * * * * * *
H * * * * * * * * * * * * * * *
R * * * * * * * * * * * * * * *
CNG 0 5 0 * * * * * * * * * * *

Marking without influence to the type of protection

Approval
I = IECEx Zone 1, Zone 21
7 = IECEx Zone 1, Zone 21; F300 for Gas Group IIC

Letter for conduit connections

Letter for electronic interface
2 = aluminum enhanced core processor
3 = stainless enhanced core processor
4 = aluminum enhanced core processor with extender
5 = stainless enhanced core processor with extender
6 = aluminum enhanced core processor for direct host
7 = stainless enhanced core processor for direct host
8 = aluminum enhanced core processor with extender for direct host
9 = stainless enhanced core processor with extender for direct host
A = local core processor
B = local core processor with extender
C = integral 1700/2700
F = integral 5700
D = local core processor for direct host
E = local core processor with extender for direct host
R = with junction box for 9-wire
H = 9 wire junction box with extender
Q = aluminum core processor
V = aluminum core processor with extender
W = aluminum core processor for direct host
Y = aluminum core processor with extender for direct host
S = 9-wire stainless junction box
T = 9-wire Stainless junction box with extender
J = integral 2200S
U = integral 2200S with extender

Marking without influence to the type of protection

A = High Temp. Stainless Steel Tube 350 °C
B = High Temp. HY Tube 350 °C
C = High Temp. Stainless Steel Tube 427 °C
E = High Temp. HY Tube 427 °C
P/J = High Pressure (for F100 only)
Other marking without influence to the type of protection

3 numerals for type of sensor

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.

- When used with an integral mounted junction box (IECEx BVS 09.0022 U), this variation gets the denomination F/H/R/CNG********(S or T)******* for a SS enclosure and F/H/R/CNG******** (R or H)******* for an aluminum enclosure.

- When used with an integral mounted signal processing device type 700 (IECEx BVS 04.0002 U), this variation gets the denomination type F/H/R/CNG********(A, B, D, or E)******* for a SS enclosure and F/H/R/CNG********(Q, V, W or Y)******* for an aluminum enclosure.

- When used with an integral mounted enhanced signal processing device type 800 (IECEx BVS 05.0010 U), this variation gets the denomination type F/H/R/CNG********(3, 5, 7 or 9)******* for a SS enclosure and F/H/R/CNG********(2, 4, 6 or 8)******* for an aluminum enclosure.

- The high temperature version F***(A, B, C or E)********** can be executed with a junction box or transmitter or core processor/enhanced core processor; this variation has therefore always the denomination F***(A, B, C or E)**********.

or

- When used with an integral transmitter type 2200S********* (IECEx BVS 08.0038X), the variation gets the denomination F*** *****(J or U)*******. By mounting the sensor directly to the 2200S transmitter the use of the unit will be modified.

- When used with an integral transmitter type (1 or 2)700********** (IECEx BVS 04.0006X), the variation gets the denomination F*** *****C*******. By mounting the sensor directly to the (1 or 2) 700 transmitter the use of the unit will be modified.

- When used with an integral transmitter type 5700********** (IECEx BVS 14.0090X), the variation gets the denomination F*** *****F*******. By mounting the sensor directly to the 5700 transmitter the use of the unit will be modified.

Modifications to the design which have impact on the electrical parameters are indicated by a Construction Identification Code (CIC). This code consists out of two digits, starting with an A and followed by a sequence number, for example A4. The CIC can be found on the approval label.

Parameters

Type F********(R,H,S,T)******* except F***(A,B,C,E)****(R,S)*******
H********(R,H,S,T)*******
R********(R,H,S,T)*******
CNG050*****(R,H,S,T)******

1.1. 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			Negligible	

Sensor type			Inductance [mH]	Coil Resistance [Ω]	Series Resistor [Ω]	Minimum Ambient/Fluid Temp [°C]
F025*****(R,H,S,T)*I***** H025*****(R,H,S,T)*I***** R025*****(R,H,S,T)*I*****		IIC	7.5	68.57	568.63	-100 °C
F050*****(R,H,S,T)*I***** H050*****(R,H,S,T)*I***** R050*****(R,H,S,T)*I***** CNG050*****(R,H,S,T)*I****		IIC	7.5	68.57	568.63	-100 °C
F100*****(R,H,S,T)*I***** H100*****(R,H,S,T)*I***** R100*****(R,H,S,T)*I*****		IIC	7.5	77.27	71.1	-83 °C
F100(P,J)****(R,H,S,T)*I*****		IIC	7.5	74.2	74.1	-89 °C
F200*****(R,H,S,T)*I***** H200*****(R,H,S,T)*I***** R200*****(R,H,S,T)*I*****		IIC	9.4	25.4	148.14	-100 °C
F300*****(R,H,S,T)*I***** H300*****(R,H,S,T)*I*****		IIB	11.75	83.5	7.9	-40 °C
F300*****(R,H,S,T)*I***** CIC A4 H300*****(R,H,S,T)*I***** CIC A4		IIC	11.75	57.8	129	-100 °C
F300*****(R,H,S,T)*7***** H300*****(R,H,S,T)*7*****		IIC	11.75	57.8	129	-100 °C

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

Voltage	Ui	DC	21.13	V
Current	Ii		18.05	mA
Power	Pi		45	mW
Effective internal capacitance	Ci		Negligible	

Sensor type			Inductance [mH]	Coil Resistance [Ω]	Series Resistor [Ω]	Minimum Ambient/Fluid Temp [°C]
F025*****(R,H,S,T)*I***** H025*****(R,H,S,T)*I***** R025*****(R,H,S,T)*I*****		IIC	7.5	68.57	0-568.63	-100 °C
F050*****(R,H,S,T) I***** H050*****(R,H,S,T)*I***** R050*****(R,H,S,T)*I***** CNG050*****(R,H,S,T)*I****		IIC	7.5	68.57	0-568.63	-100 °C
F100*****(R,H,S,T)*I***** H100*****(R,H,S,T)*I***** R100*****(R,H,S,T)*I*****		IIC	7.5	77.27	0-568.83	-83 °C
F100(P,J)****(R,H,S,T)*I*****		IIC	0.55	17.2	0-568.76	-89 °C
F200*****(R,H,S,T)*I***** H200*****(R,H,S,T)*I***** R200*****(R,H,S,T)*I*****		IIC	12.4	88.6	0-568.63	-100 °C
F300*****(R,H,S,T)*I***** H300*****(R,H,S,T)*I*****		IIB	12.4	128.4	0-569.3	-40 °C
F300*****(R,H,S,T)*I***** CIC A4 H300*****(R,H,S,T)*I***** CIC A4		IIC	12.4	88.6	0-568.63	-100 °C
F300*****(R,H,S,T)*7***** H300*****(R,H,S,T)*7*****		IIC	12.4	88.6	0-568.63	-100 °C

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

Voltage	Ui	DC	21.13	V
Current	Ii		26	mA
Power	Pi		112	mW
Effective internal capacitance	Ci		Negligible	
Effective internal inductance	Li		Negligible	

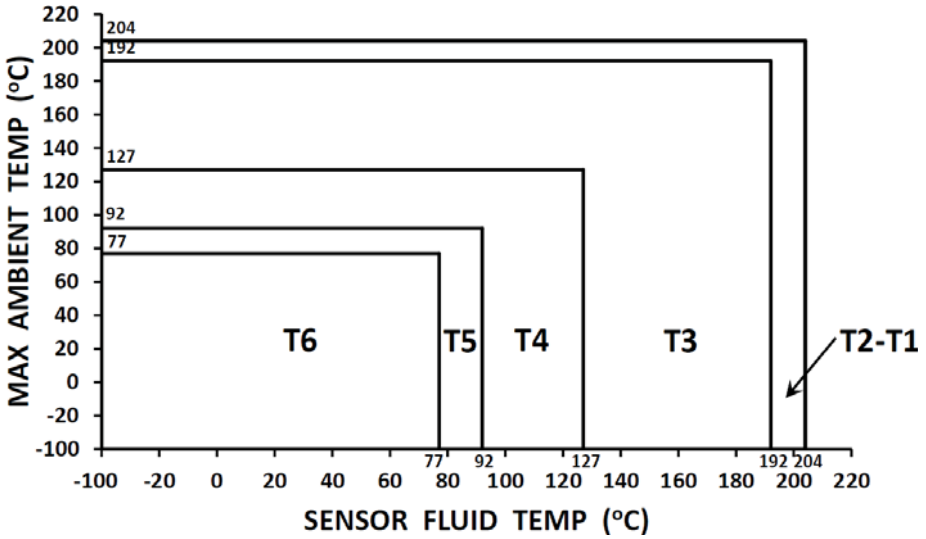
Identification resistor circuit (terminals 3 & 4 or wires orange and yellow)

Sensor type	Inductance [mH]	Coil resistance [Ω]	Serial resistor [Ω]	Minimum Ambient/Fluid Temperature [°C]
F300*****(R,H,S,T)*I*****	N/A	N/A	42.2 to 44.3	-40 °C
F300*****(R,H,S,T)*I***** CIC A4	N/A	N/A	42.2 to 44.3	-100 °C
F300*****(R,H,S,T)*7*****	N/A	N/A	42.2 to 44.3	-100 °C
H300*****(R,H,S,T)*I*****	N/A	N/A	42.2 to 44.3	-40 °C
H300*****(R,H,S,T)*I***** CIC A4	N/A	N/A	42.2 to 44.3	-100 °C
H300*****(R,H,S,T)*7*****	N/A	N/A	42.2 to 44.3	-100 °C
F100(P,J)****(R,H,S,T)*I*****	N/A	N/A	46.4 to 48.7	-89 °C

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 graphs:

1.4.1

Sensor type 		
F025*****(R,H,S,T)*I***** H025*****(R,H,S,T)*I***** R025*****(R,H,S,T)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series
F050*****(R,H,S,T)*I***** H050*****(R,H,S,T)*I***** R050*****(R,H,S,T)*I***** CNG050*****(R,H,S,T)*I****	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

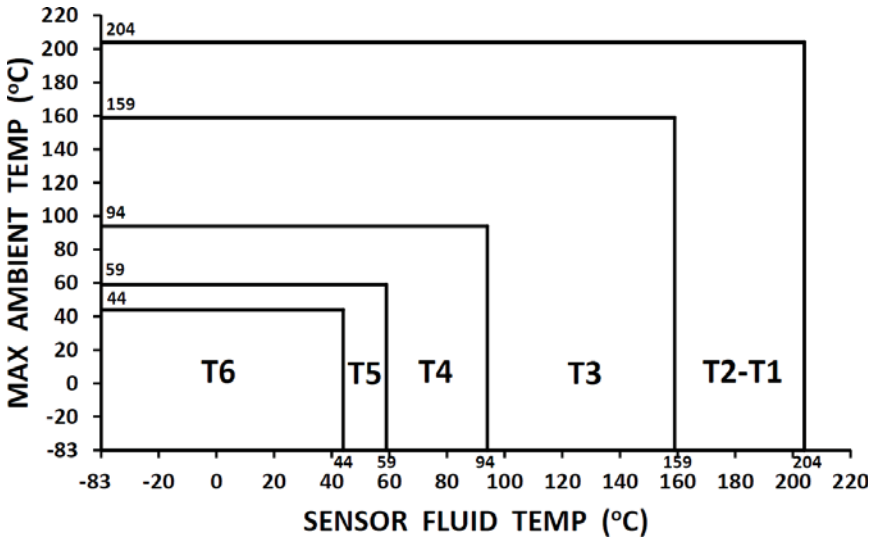
Note 2: The maximum surface temperature T for dust is as follows: T6: T80 °C, T5: T95 °C, T4: T130 °C, T3: T195 °C, T2 and T1: T226 °C.

Note 3: The minimum ambient temperature allowed for dust is -40 °C.

Ambient temperature range	Ta	see Graph

1.4.2

Sensor type 		
F100*****(R,H,S,T)*I***** H100*****(R,H,S,T)*I***** R100*****(R,H,S,T)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

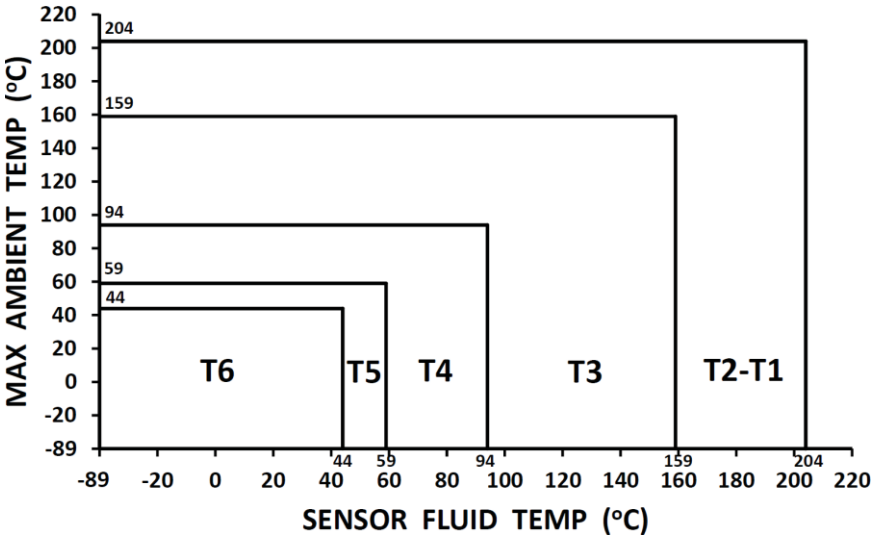
Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 240 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range Ta see Graph

1.4.3

Sensor type 		
F100(P,J)****(R,H,S,T)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

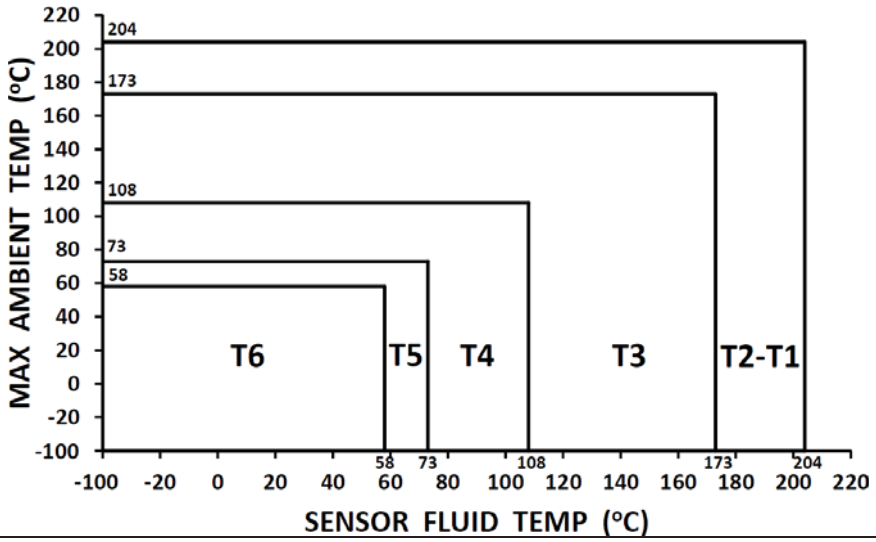
Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 240 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range Ta see Graph

1.4.4

Sensor type 		
F200*****(R,H,S,T)*I***** H200*****(R,H,S,T)*I***** R200*****(R,H,S,T)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series

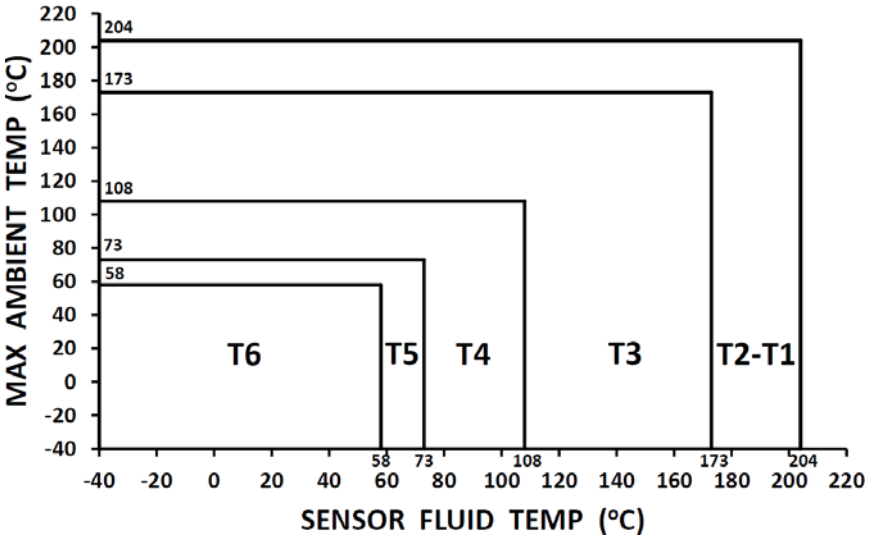


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.
Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: to T1:T 226 °C.
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range Ta see Graph

1.4.5

Sensor type		
F300*****(R,H,S,T)*I***** H300*****(R,H,S,T)*I*****	IIB	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series

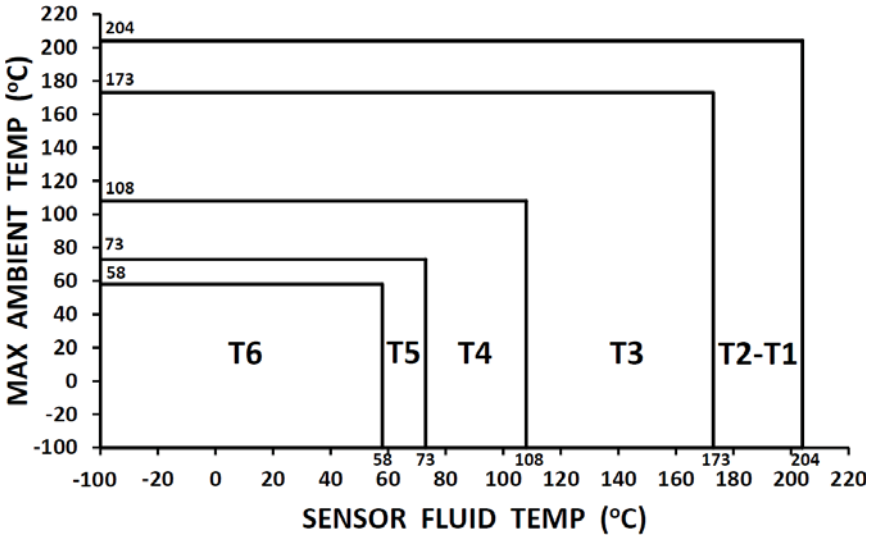


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.
Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 226 °C.

Ambient temperature range Ta see Graph

1.4.6

Sensor type		
F300*****(R,H,S,T)*I***** CIC A4 H300*****(R,H,S,T)*I***** CIC A4	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series
F300*****(R,H,S,T)*7***** H300*****(R,H,S,T)*7*****	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T6: T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 226 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range	Ta	see Graph

2 Type F***(A,B,C,E)****(R,S)******* with J-box.

2.1 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  or		Inductance [mH]	Coil Resistance [Ω]	Series Resistor [Ω]	Minimum Ambient/Fluid Temp [°C]
F025(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	55.3	-50
F025(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	38.5	-50
F050(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	55.3	-50
F050(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	38.5	-50
F100(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	55.3	-50
F100(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	38.3	-50
F300(A,B,C,E)****(R,S)*I*****	IIB	7.75	54.3	19.8	-50

2.2 Pick-off circuit (Terminals 5/9 and 6/8 or wires green/white and blue/grey)

Voltage	Ui	DC	21.13	V
Current	Ii		18.05	mA
Power	Pi		45	mW
Effective internal capacitance	Ci		Negligible	

Sensor type  or		Inductance [mH]	Coil Resistance [Ω]	Series Resistor [Ω]	Minimum Ambient/Fluid Temp [°C]
F025(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	0-569.2	-50
F025(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	0-569.2	-50
F050(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	0-569.2	-50
F050(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	0-569.2	-50
F100(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	0-569.2	-50
F100(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	0-569.2	-50
F300(A,B,C,E)****(R,S)*I*****	IIB	6.5	41.1	0-569.2	-50

2.3 Temperature circuit (terminals 3, 4 and 7 or wires orange, yellow and violet)

Voltage	Ui	DC	21.13	V
Current	Ii		26	mA
Power	Pi		112	mW
Effective internal capacitance	Ci		Negligible	
Effective internal inductance	Li		Negligible	

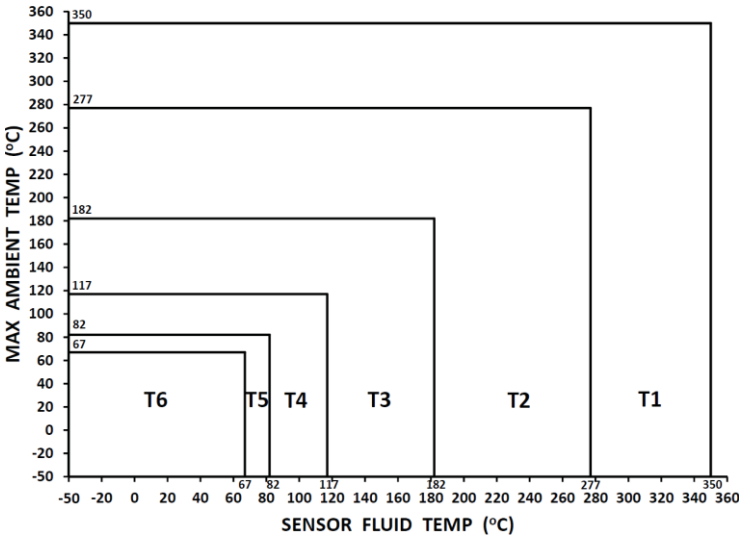
Identification resistor circuit (terminals 3 & 4 or wires orange and yellow)

Sensor type	Inductance [mH]	Coil resistance [Ω]	Serial resistor [Ω]	Minimum Ambient/ Fluid Temperature [°C]
F025(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50 °C
F025(A,B,C,E)****(R,S)*I***** C.I.C. A1	N/A	N/A	42.2 to 44.3	-50 °C
F050(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50 °C
F050(A,B,C,E)****(R,S)*I***** C.I.C. A1	N/A	N/A	42.2 to 44.3	-50 °C
F100(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50 °C
F100(A,B,C,E)****(R,S)*I***** C.I.C. A1	N/A	N/A	42.2 to 44.3	-50 °C
F300(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50 °C

2.4 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 graphs:

2.4.1

Sensor type	 or 	
F025(A,B)****(R,S)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series
F025(A,B)****(R,S)*I***** CIC A1	IIC	
F050(A,B)****(R,S)*I*****	IIC	
F050(A,B)****(R,S)*I***** CIC A1	IIC	
F100(A,B)****(R,S)*I*****	IIC	
F100(A,B)****(R,S)*I***** CIC A1	IIC	
F300(A,B)****(R,S)*I*****	IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

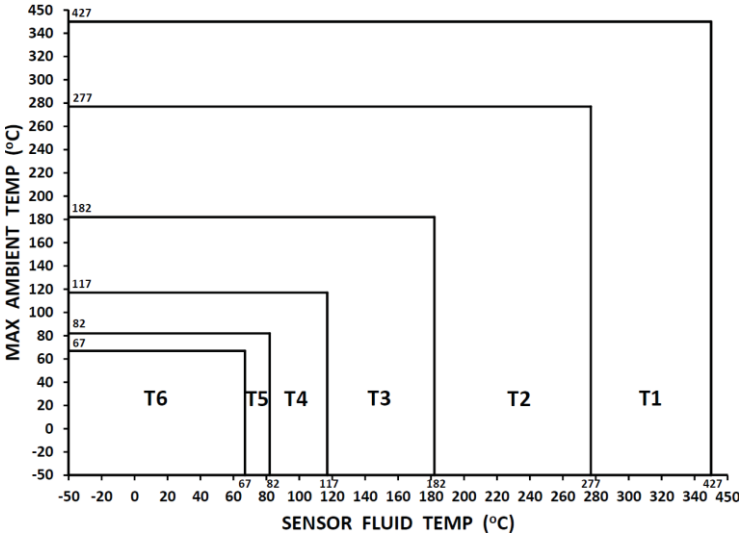
Note 2: The maximum surface temperature for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2:T 290 °C, T1:T 363 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range Ta see Graph

2.4.2

Sensor type	 or 	
F025(C,E)****(R,S)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series
F025(C,E)****(R,S)*I***** CIC A1	IIC	
F050(C,E)****(R,S)*I*****	IIC	
F050(C,E)****(R,S)*I***** CIC A1	IIC	
F100(C,E)****(R,S)*I*****	IIC	
F100(C,E)****(R,S)*I***** CIC A1	IIC	
F300(C,E)****(R,S)*I*****	IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2:T 290 °C, T1:T 440 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range	Ta	see Graph

3 Type F********(2-9,A,B,D,E,Q,V,W or Y)******* with integral core-processor, H********(2-9,A,B,D,E,Q,V,W or Y)*******, R********(2-9,A,B,D,E,Q,V,W or Y)*******, CNG050*****(2-9,A,B,D,E,Q,V,W or Y)****** except type F***(A,B,C,E)****(2,3,6,7,A,D,Q,W)*******

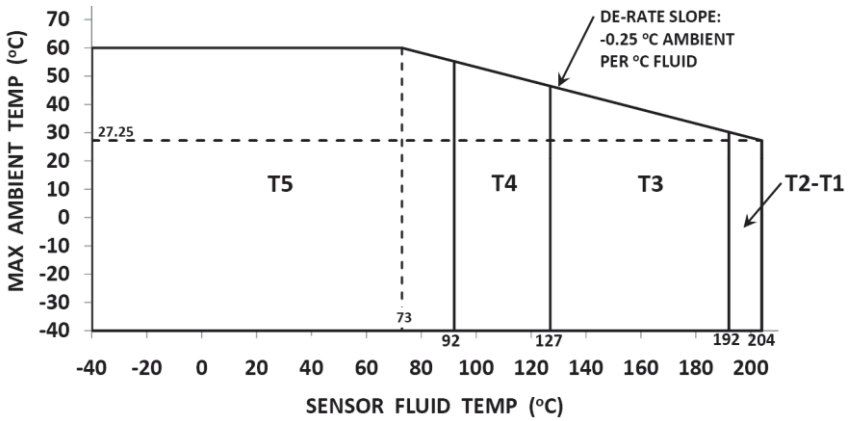
3.1 Input circuits (terminals 1-4)

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

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:

3.2.1

Sensor type			
F025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****		IIC	With integral core processor
F050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CNG050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I****		IIC	

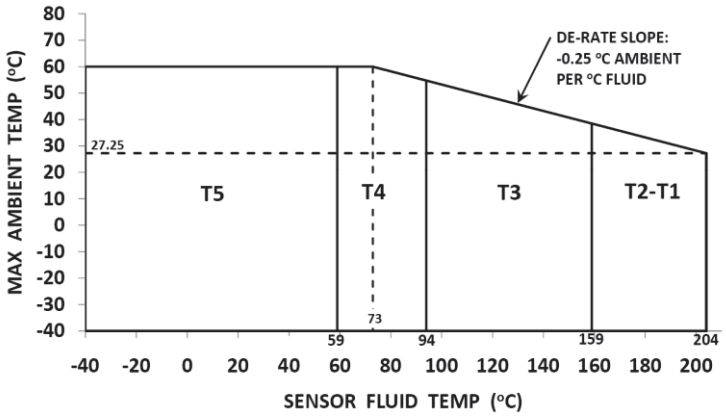


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.
Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 207 °C.

Ambient temperature range Ta see Graph

3.2.2

Sensor type			
F100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** F100(P,J)****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****		IIC	With integral core processor



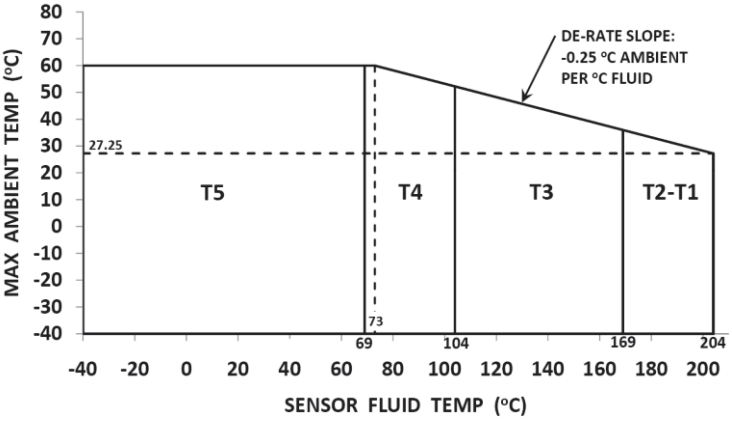
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 240 °C.

Ambient temperature range	Ta	see Graph

3.2.3

Sensor type		
F200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	IIC	With integral core processor



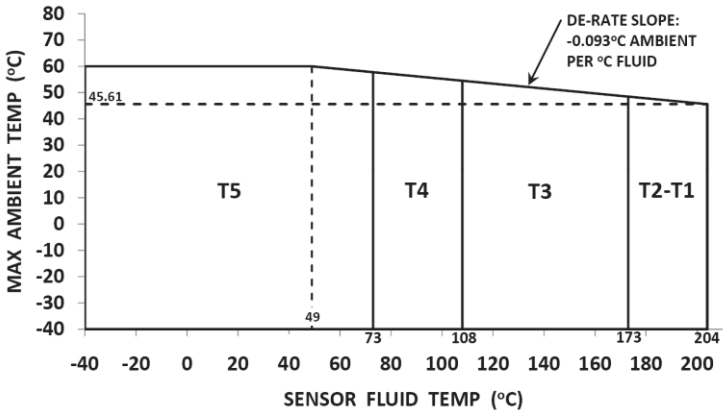
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 230 °C.

Ambient temperature range	Ta	-40 °C to +60 °C

3.2.4

Sensor type		
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	IIB	With integral core processor
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A4 H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A4	IIC	
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*7***** H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*7*****	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 226 °C.

Ambient temperature range	Ta	-40 °C to +60 °C

4 Type F***(A,B,C,E)****(2,3,6,7,A,D,Q,W)******* with integral core processor.

 or 

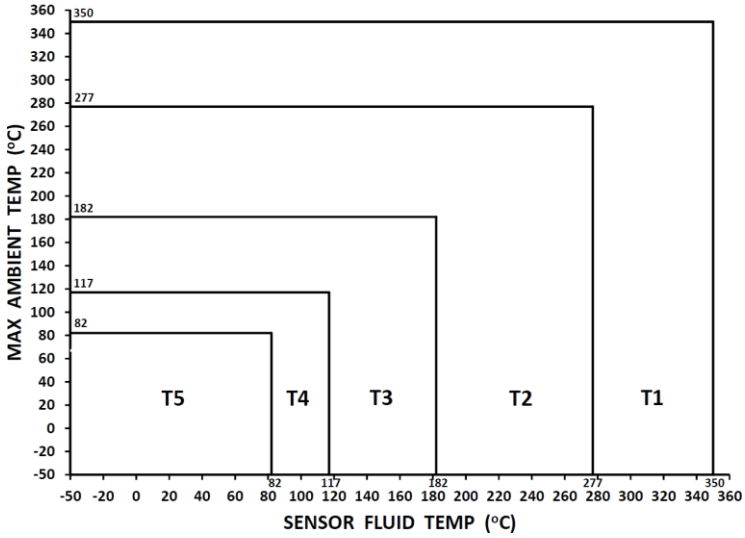
4.1 Input circuits (terminals 1-4)

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

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 graphs:

4.2.1

Sensor type	 or 		
F025(A,B)****(2,3,6,7,A,D,Q,W)*I*****		IIC	With integral core processor
F025(A,B)****(2,3,6,7,A,D,Q,W)*I***** CIC A1		IIC	
F050(A,B)****(2,3,6,7,A,D,Q,W)*I*****		IIC	
F050(A,B)****(2,3,6,7,A,D,Q,W)*I***** CIC A1		IIC	
F100(A,B)****(2,3,6,7,A,D,Q,W)*I*****		IIC	
F100(A,B)****(2,3,6,7,A,D,Q,W)*I***** CIC A1		IIC	
F300(A,B)****(2,3,6,7,A,D,Q,W)*I*****		IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 363 °C.

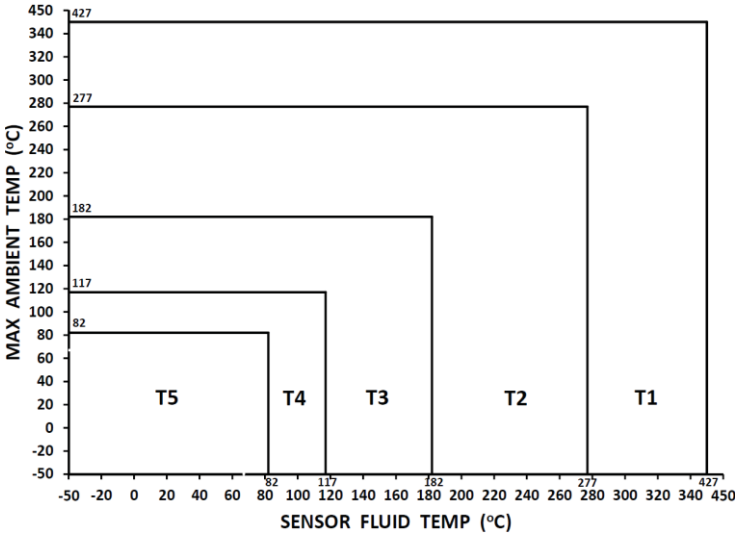
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range Ta see Graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 60 °C even at a maximum ambient temperature of 60 °C.

4.2.2

Sensor type	 or 	
F025(C,E)****(2,3,6,7,A,D,Q,W)*I*****	IIC	With integral core processor
F025(C,E)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	IIC	
F050(C,E)****(2,3,6,7,A,D,Q,W)*I*****	IIC	
F050(C,E)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	IIC	
F100(C,E)****(2,3,6,7,A,D,Q,W)*I*****	IIC	
F100(C,E)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	IIC	
F300(C,E)****(2,3,6,7,A,D,Q,W)*I*****	IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 440 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range Ta see Graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 60 °C even at a maximum ambient temperature of 60 °C.

5 Type F********(J,U)*******, H********(J,U)*******, R********(J,U)*******, CNG050*****(J,U)****** with 2200S transmitter except type F***(A,B,C,E)****J*******

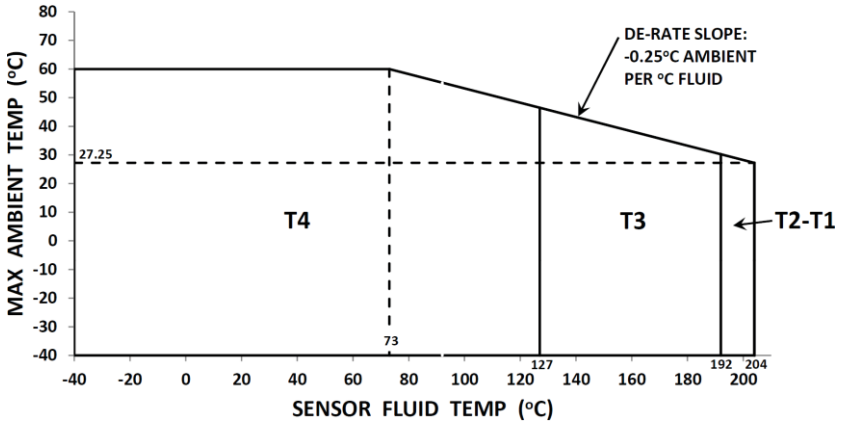
5.1 Input circuits (terminals 1-(3,4,5))

Voltage	Ui	DC	28	V
Current	Ii		120	mA
Power	Pi		0.84	W
Effective internal capacitance	Ci		2200	pF
Effective internal inductance	Li		45	µH

5.2 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:

5.2.1

Sensor type		
F025*****(J,U)*I***** H025*****(J,U)*I***** R025*****(J,U)*I*****	IIC	With integral 2200S
F050*****(J,U)*I***** H050*****(J,U)*I***** R050*****(J,U)*I***** CNG050*****(J,U)*I****	IIC	



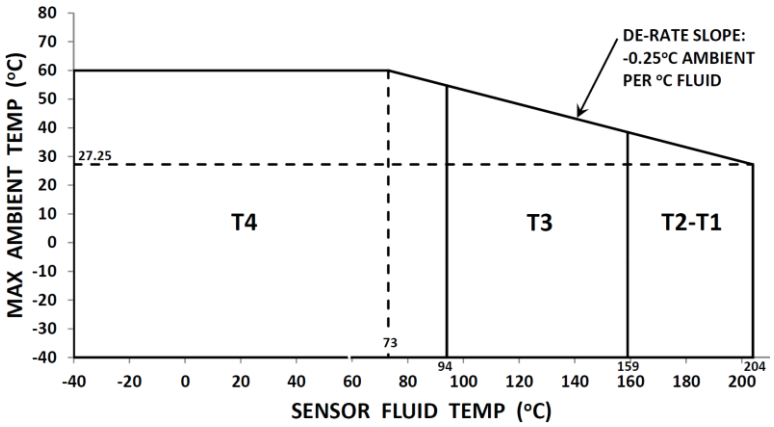
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T4:T 130 °C, T3:T 195 °C, T2 to T1:T 207 °C.

Ambient temperature range	Ta	-40 °C to +60 °C

5.2.2

Sensor type		
F100*****(J,U)*I***** H100*****(J,U)*I***** R100*****(J,U)*I*****	IIC	With integral 2200S



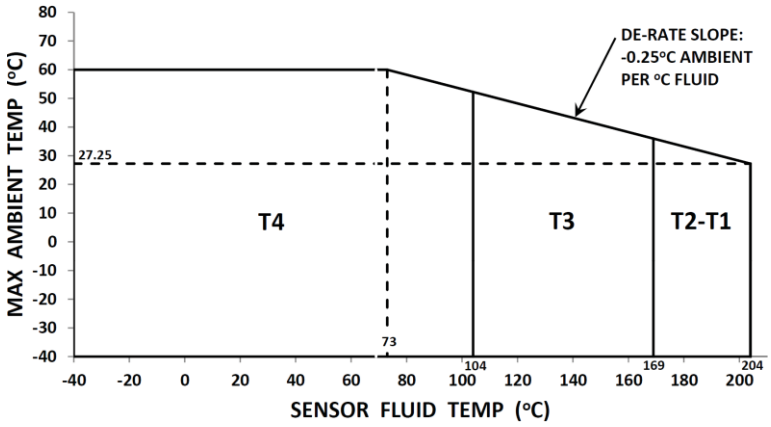
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T4:T 130 °C, T3:T 195 °C, T2 to T1:T 240 °C.

Ambient temperature range	Ta	-40 °C to +60 °C

5.2.3

Sensor type		
F200*****(J,U)*I***** H200*****(J,U)*I***** R200*****(J,U)*I*****	IIC	With integral 2200S



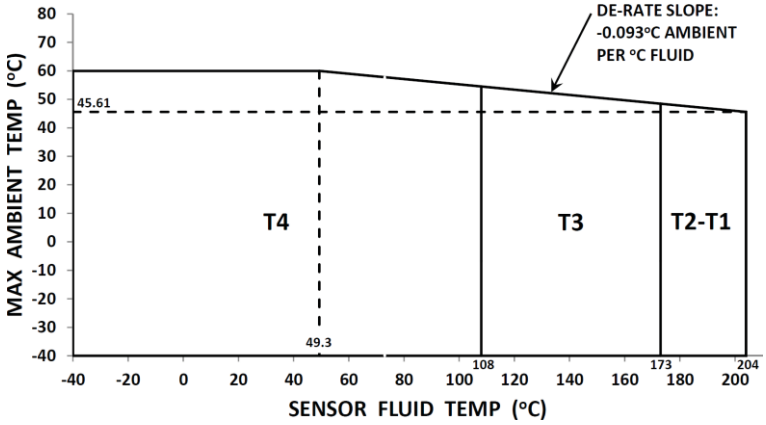
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T4:T 130 °C, T3:T 195 °C, T2 to T1:T 230 °C.

Ambient temperature range	Ta	-40 °C to +60 °C

5.2.4

Sensor type		
F300*****(J,U)*I***** H300*****(J,U)*I*****	IIB	With integral 2200S
F300*****(J,U)*I***** CIC A4 H300*****(J,U)*I***** CIC A4	IIC	
F300*****(J,U)*7***** H300*****(J,U)*7*****	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.
Note 2: The maximum surface temperature for dust is as follows: T4:T 130 °C, T3:T 195 °C, T2 to T1:T 226 °C.

Ambient temperature range	Ta	-40 °C to +60 °C

6 Type F***(A,B,C,E)****J******* with integral 2200S transmitter


or

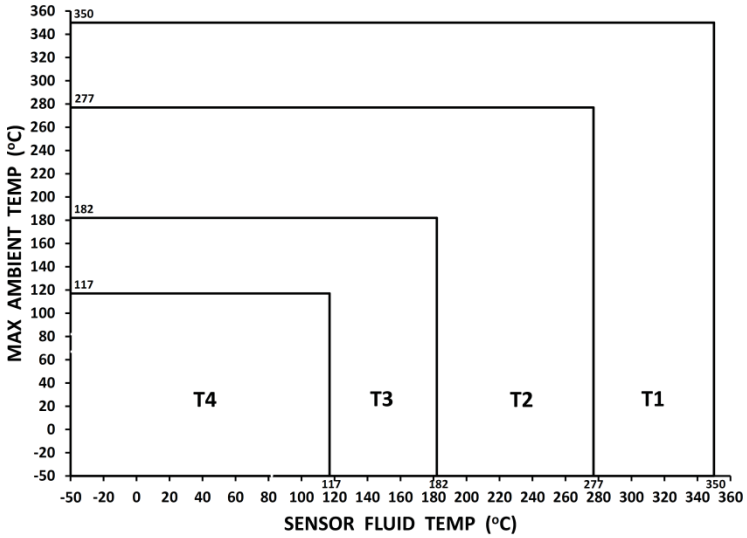

6.1 Input circuits (terminals 1-(3,4,5))

Voltage	Ui	DC	28	V
Current	Ii		120	mA
Power	Pi		0.84	W
Effective internal capacitance	Ci		2200	pF
Effective internal inductance	Li		45	µH

6.2 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:

6.2.1

Sensor type		
	 or 	
F025(A,B)****J*I*****	IIC	With integral 2200S
F025(A,B)****J*I***** CIC A1	IIC	
F050(A,B)****J*I*****	IIC	
F050(A,B)****J*I***** CIC A1	IIC	
F100(A,B)****J*I*****	IIC	
F100(A,B)****J*I***** CIC A1	IIC	
F300(A,B)****J*I*****	IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 363 °C.

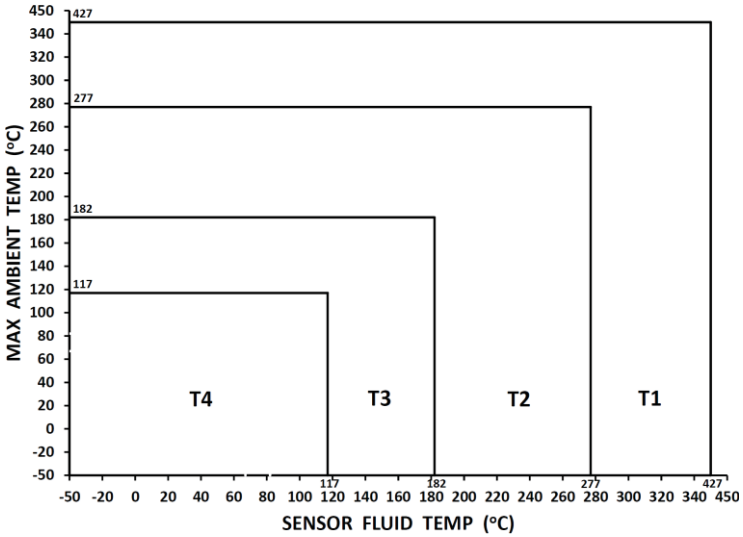
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range	Ta	see Graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 60 °C even at a maximum ambient temperature of 60 °C.

6.2.2

Sensor type	 or 	
F025(C,E)****J*I*****	IIC	With integral 2200S
F025(C,E)****J*I***** CIC A1	IIC	
F050(C,E)****J*I*****	IIC	
F050(C,E)****J*I***** CIC A1	IIC	
F100(C,E)****J*I*****	IIC	
F100(C,E)****J*I***** CIC A1	IIC	
F300(C,E)****J*I*****	IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 440 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range	Ta	see Graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 60 °C even at a maximum ambient temperature of 60 °C.

7 Type F********(C,F)*I*****, H********(C,F)*I***** ,R********(C,F)*I*****, CNG050*****(C,F)*I**** except Type F***(A,B,C,E)****C*I*****

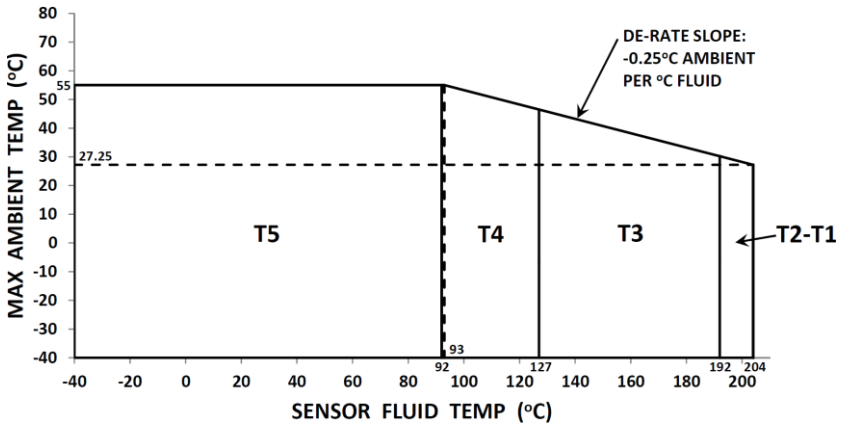
7.1 Electrical parameters see IECEx BVS 04.0006X for the transmitter type *700**********

7.2 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:

7.2.1

Sensor type		
F025*****C*I***** H025*****C*I***** R025*****C*I*****	IIC	With integral 1700 or 2700
F050*****C*I***** H050*****C*I***** R050*****C*I***** CNG050 *****C*I****	IIC	

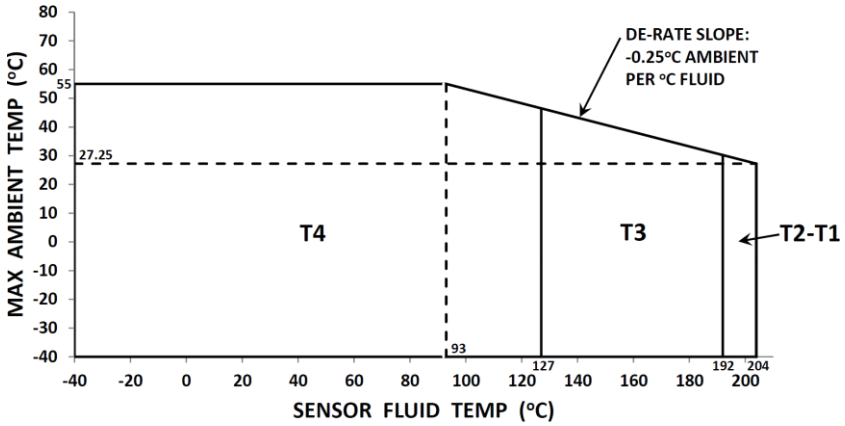


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 207 °C.

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

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

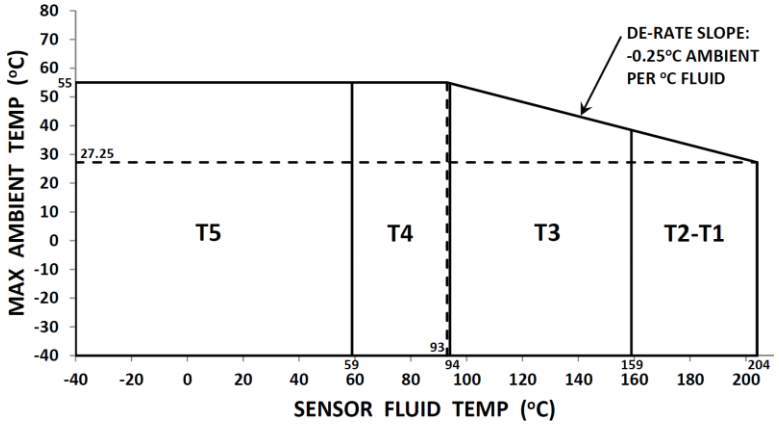


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

7.2.2

Sensor type		
F100*****C*I***** H100*****C*I***** R100*****C*I*****	IIC	With integral 1700 or 2700

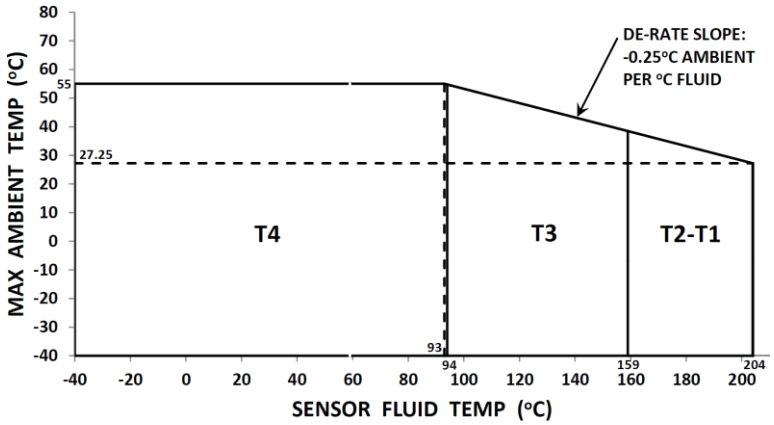


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 240 °C.

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

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

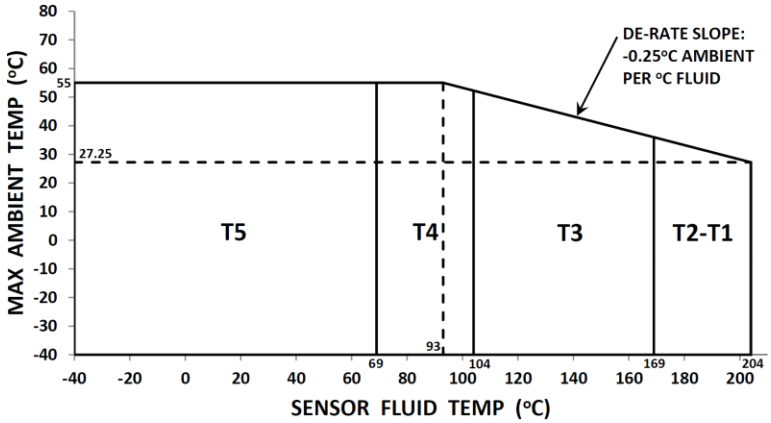


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

7.2.3

Sensor type		
F200*****C*I***** H200*****C*I***** R200*****C*I*****	IIC	With integral 1700 or 2700

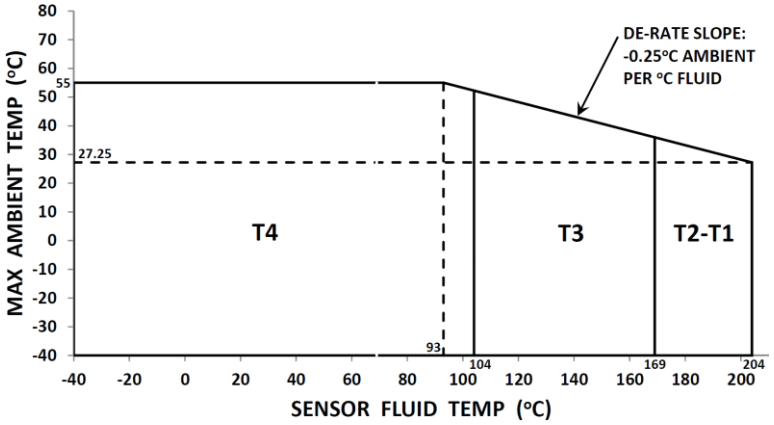


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 230 °C.

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

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

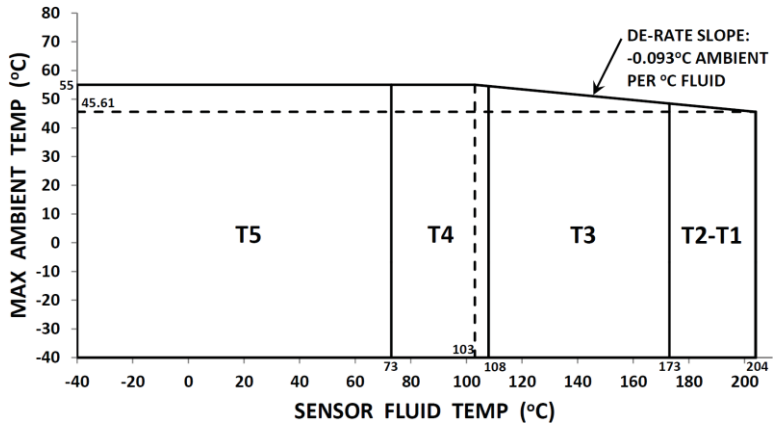


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

7.2.4

Sensor type		
F300*****C*I***** H300*****C*I*****	IIB	With integral 1700 or 2700
F300*****C*I***** CIC A4 H300*****C*I***** CIC A4	IIC	
F300*****C*7***** H300*****C*7*****	IIC	

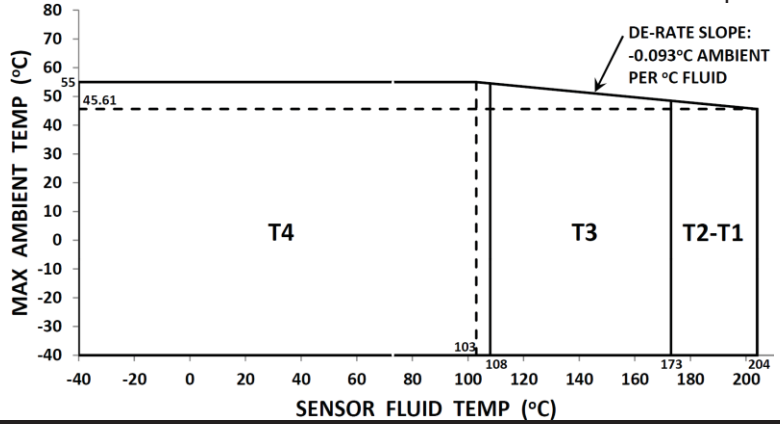


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 226 °C.

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

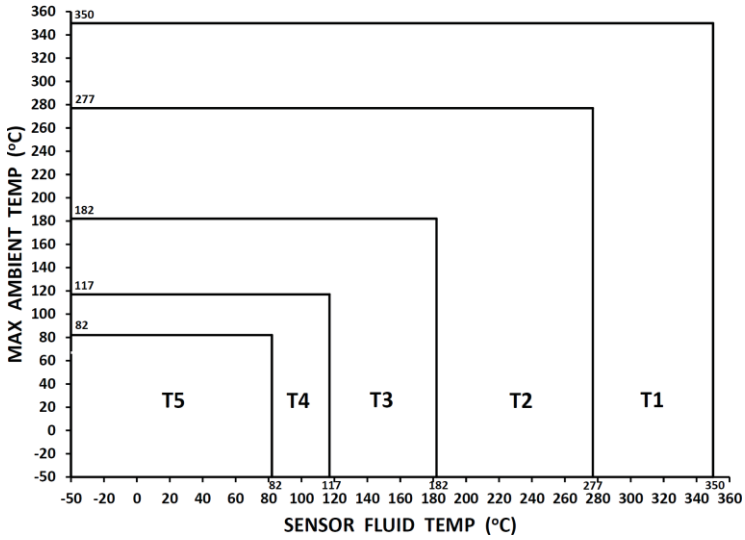
8 Type F***(A,B,C,E)****C*I*****

8.1 Electrical parameters see IECEx BVS 04.0006X for the transmitter type *700**********

8.2 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:

8.2.1

Sensor type	 or 		
F025(A,B)****C*I*****		IIC	With Integral 1700 or 2700
F025(A,B)****C*I***** CIC A1		IIC	
F050(A,B)****C*I*****		IIC	
F050(A,B)****C*I***** CIC A1		IIC	
F100(A,B)****C*I*****		IIC	
F100(A,B)****C*I***** CIC A1		IIC	
F300(A,B)****C*I*****		IIB	



Note1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

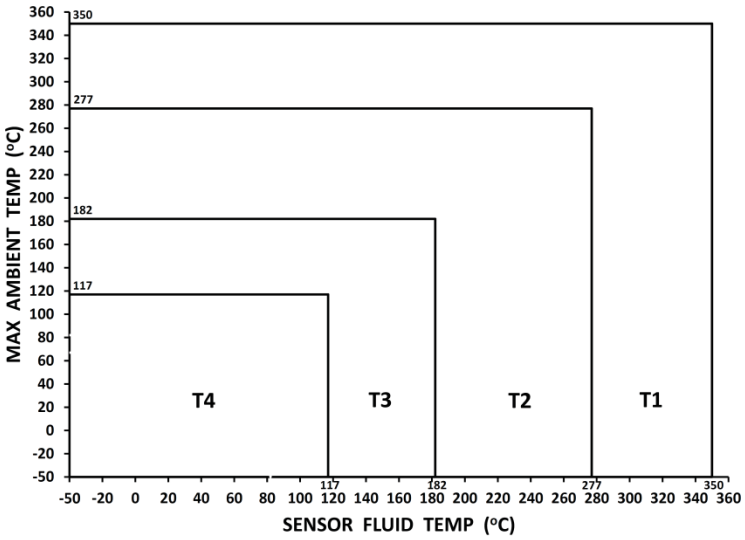
Note 2: The maximum surface temperature T for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 363 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range Ta see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 55 °C even at a maximum ambient temperature of 55 °C.

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



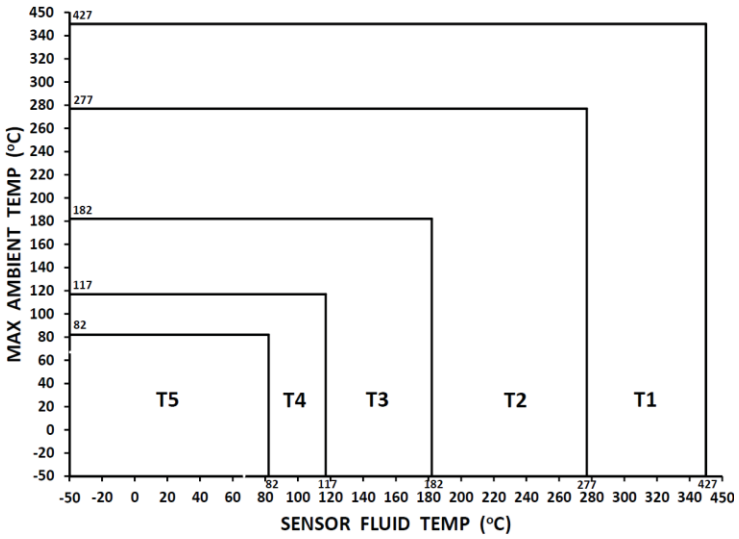
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 55 °C even at a maximum ambient temperature of 55 °C.

8.2.2

Sensor type	 or 		
F025(C,E)****C*I*****		(IIC)	With Integral 1700 or 2700
F025(C,E)****C*I***** CIC A1		(IIC)	
F050(C,E)****C*I*****		(IIC)	
F050(C,E)****C*I***** CIC A1		(IIC)	
F100(C,E)****C*I*****		(IIC)	
F100(C,E)****C*I***** CIC A1		(IIC)	
F300(C,E)****C*I*****		(IIB)	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

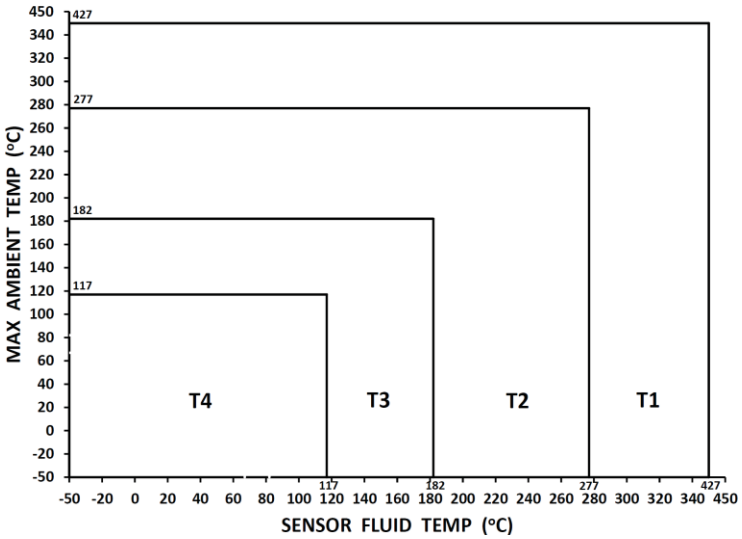
Note 2: The maximum surface temperature T for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 440 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range Ta see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 55 °C even at a maximum ambient temperature of 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 Ta see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 55 °C even at a maximum ambient temperature of 55 °C.

9 Type F*** *****F*I*****, H*** *****F*I*****,R*** *****F*I*****, CNG050 *****F*I****
except Type F*** (A, B, C or E)****F*I*****

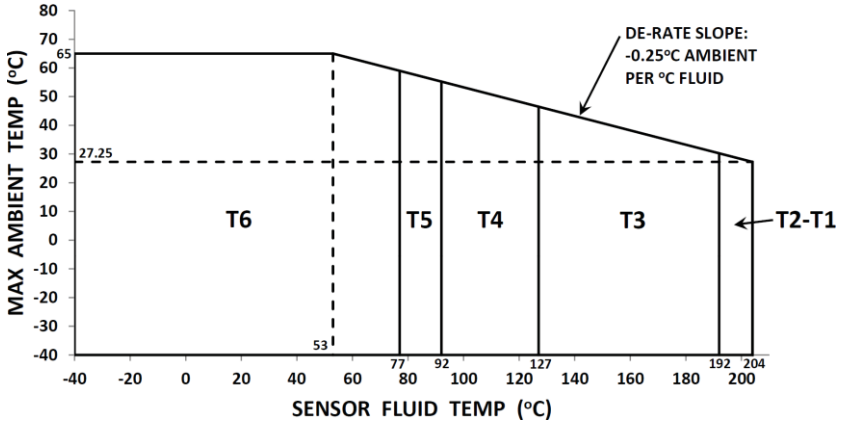
9.1 Electrical parameters see IECEx BVS 14.0090X for the transmitter type 5700**********

9.2 Temperature class/ maximum 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:

9.2.1

Sensor type			
F025*****F*I*****	IIC	With integral 5700	
F050*****F*I*****	IIC		

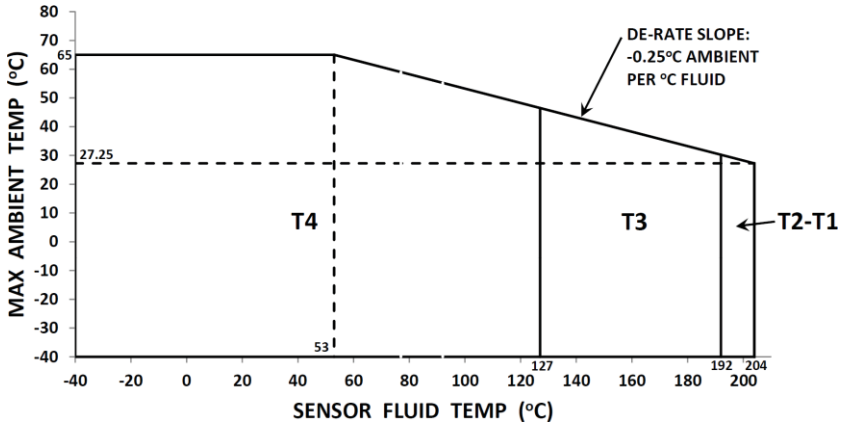


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6: T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 207 °C.

Ambient temperature range Ta -40 °C to +65 °C

When used with 5700 Transmitter with Wireless HART Output Add on Options Code “PI” or “NI” (5700*1*A*IA*** *****(NI,PI):

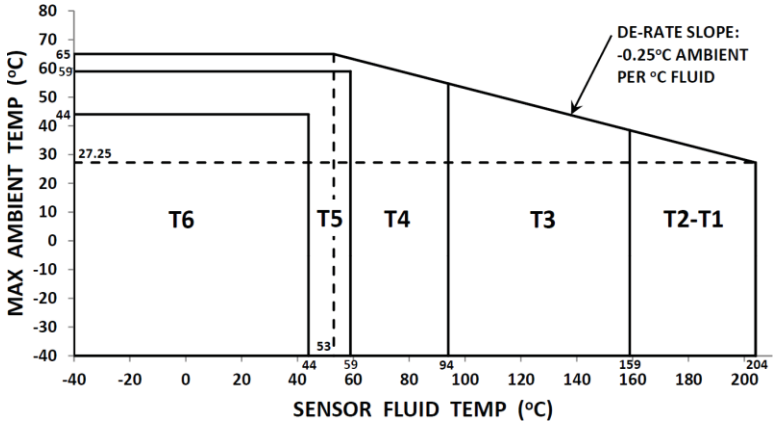


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta -40 °C to +65 °C

9.2.2

Sensor type		
F100*****F*I*****	IIC	With integral 5700
F100(P,J)****F*I*****	IIC	

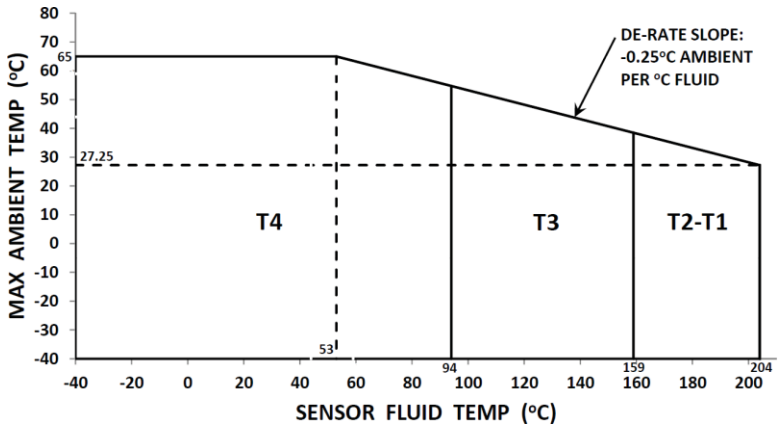


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 240 °C.

Ambient temperature range Ta -40 °C to +65 °C

When used with 5700 Transmitter with Wireless HART Output Add on Options Code “PI” or “NI” (5700*1***A***IA*** *****(NI,PI):

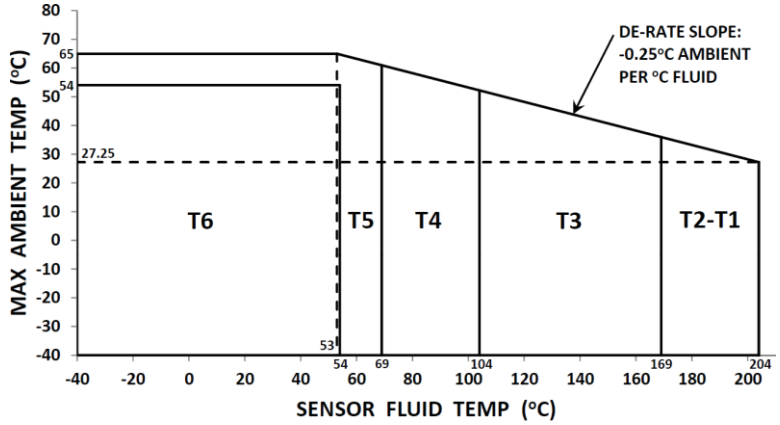


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta -40 °C to +56 °C

9.2.3

Sensor type			
F200*****F*I*****		IIC	With integral 5700

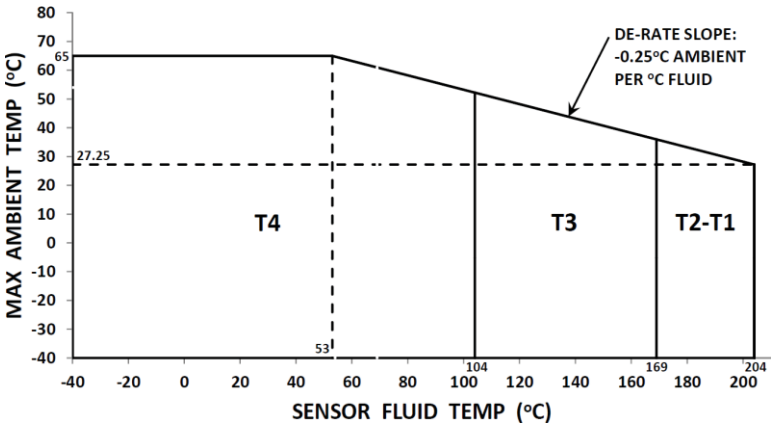


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 230 °C.

Ambient temperature range Ta -40 °C to +65 °C

When used with 5700 Transmitter with Wireless HART Output Add on Options Code “PI” or “NI” (5700*1***A***IA*** *****(NI,PI):

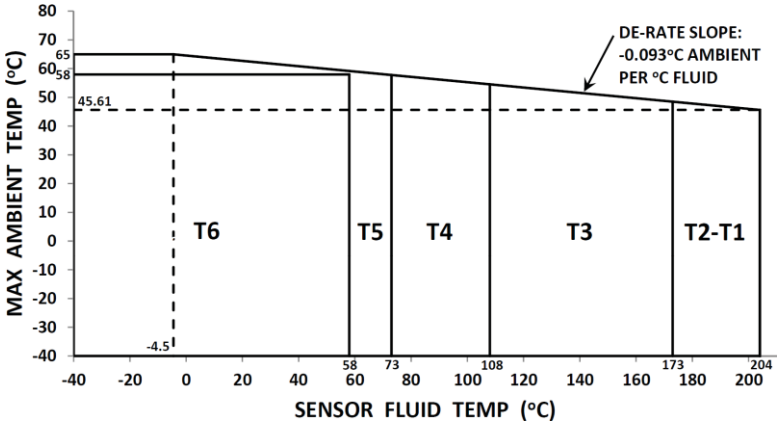


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range Ta -40 °C to +65 °C

9.2.4

Sensor type		
F300*****F*I*****	IIB	With integral 5700
F300*****F*I***** CIC A4	IIC	
F300*****F*7*****	IIC	

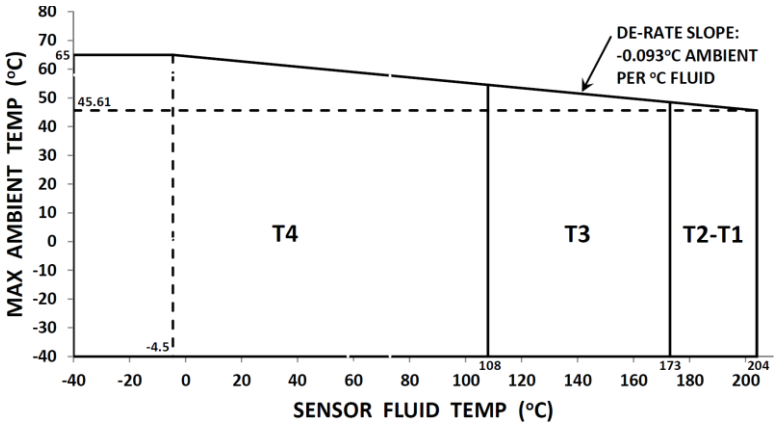


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 226 °C.

Ambient temperature range	Ta	-40 °C to +65 °C

When used with 5700 Transmitter with Wireless HART Output Add on Options Code “PI” or “NI” (5700*1***A***IA*** *****(NI,PI):



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

Ambient temperature range	Ta	-40 °C to +65 °C

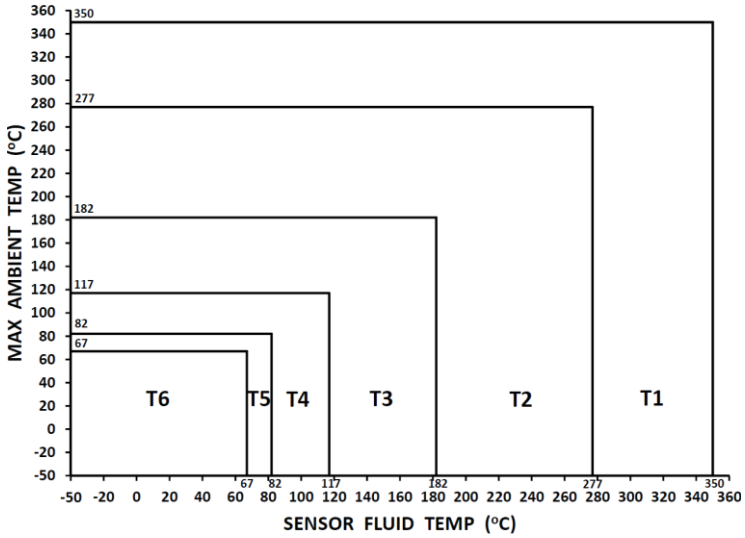
10 Type F*** (A, B, C or E) ****F*I*****

10.1 Electrical parameters see IECEx BVS 14.0090 X for the transmitter type 5700

10.2 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:

10.2.1

Sensor type	 or 	
F025(A,B)****F*I*****	IIC	With integral 5700
F025(A,B)****F*I***** CIC A1	IIC	
F050(A,B)****F*I*****	IIC	
F050(A,B)****F*I***** CIC A1	IIC	
F100(A,B)****F*I*****	IIC	
F100(A,B)****F*I***** CIC A1	IIC	
F300(A,B)****F*I*****	IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

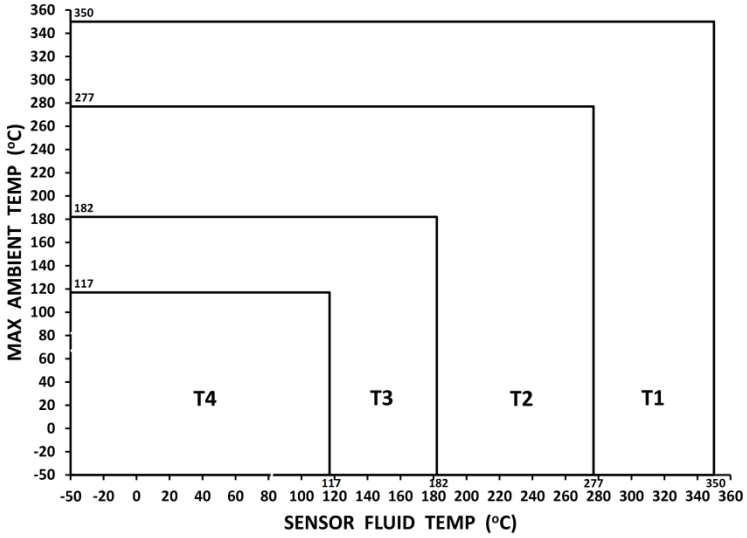
Note 2: The maximum surface temperature T for dust is as follows: T6:T 8 0°C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 36 3°C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range Ta see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 65 °C even at a maximum ambient temperature of 65 °C.

When used with 5700 Transmitter with Wireless HART Output Add on Options Code “PI” or “NI” (5700*1***A***IA*** *****(NI,PI):



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

Ambient temperature range	Ta	see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 65 °C even at a maximum ambient temperature of 65 °C.

10.2.2

Sensor type	 or 	
F025(C,E)****F*I*****	IIC	With integral 5700
F025(C,E)****F*I***** CIC A1	IIC	
F050(C,E)****F*I*****	IIC	
F050(C,E)****F*I***** CIC A1	IIC	
F100(C,E)****F*I*****	IIC	
F100(C,E)****F*I***** CIC A1	IIC	
F300(C,E)****F*I*****	IIB	

"Conditions of Use" for Ex Equipment ~~or "Schedule of Limitations" for Ex Components~~, if any:

1 By mounting the sensor type ********C******* directly to the transmitter *700********** the use of the unit will be modified according to the following:

Sensor	F025*****C*I***** F050*****C*I***** F100*****C*I***** F200*****C*I***** F300*****C*I***** CIC A4 F300*****C*7***** H025*****C*I***** H050*****C*I***** H100*****C*I***** H200*****C*I***** H300*****C*I***** CIC A4 H300*****C*7***** R025*****C*I***** R050*****C*I***** R100*****C*I***** R200*****C*I***** CNG050*****C*I**** F025(A,B,C,E)****C*I***** F050(A,B,C,E)****C*I***** F100(A,B,C,E)****C*I***** F025(A B,C,E)****C*I***** CIC A1 F050(A,B,C,E)****C*I***** CIC A1 F100(A,B,C,E)****C*I***** CIC A1	F300*****C*I***** F300(A,B,C,E)****C*I***** H300*****C*I*****
Transmitter type *700*1[1)]*******	Ex ib IIB+H_2 T5…T1 Gb Ex tb IIIC T[3)]°C Db	Ex ib IIB T5…T1 Gb Ex tb IIIC T[3)]°C Db
Transmitter type *700*1[2)]*******	Ex ib IIC T5…T1 Gb Ex tb IIIC T[3)]°C Db	Ex ib IIB T5…T1 Gb Ex tb IIIC T[3)]°C Db
Transmitter type *700*1[1)]4******	Ex ib IIB+H_2 T4…T1 Gb	Ex ib IIB T4…T1 Gb
Transmitter type *700*1[2)]4******	Ex ib IIC T4…T1 Gb	Ex ib IIB T4…T1 Gb

[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)] Max. surface temperature T for dust see temperature graphs and manufacturer's instructions.

2 By mounting the sensor type ********(J,U)******* directly to the transmitter 22**S********** the use of the unit will be modified according to the following:

Sensor type	F025*****(J,U)*I***** F050*****(J,U)*I***** F100*****(J,U)*I***** F100(P,J)****(J,U)*I***** F200*****(J,U)*I***** F300*****(J,U)*I***** CIC A4 F300*****(J,U)*7***** H025*****(J,U)*I***** H050*****(J,U)*I***** H100*****(J,U)*I***** H200*****(J,U)*I***** H300*****(J,U)*I***** CIC A4 H300*****(J,U)*7***** R025*****(J,U)*I***** R050*****(J,U)*I***** R100*****(J,U)*I***** R200*****(J,U)*I***** CNG050*****(J,U)*I**** F025(A,B,C,E)****J*I***** F050(A,B,C,E)****J*I***** F100(A,B,C,E)****J*I***** F025(A,B,C,E)****J*I***** CIC A1 F050(A, B, C,E)****J*I***** CIC A1 F100(A, B, C,E)****J*I***** CIC A1	F300*****(J,U)*I***** F300(A,B,C,E)****J*I***** H300*****(J,U)*I*****
Transmitter type 2200S*(H or K)*1******	Ex ib IIC T4…T1 Ex ibD 21 T [3)]°C	Ex ib IIB T4…T1 Ex ibD 21 T [3)]°C
Transmitter type 2200S*(5 or 6)*1******	Ex ib IIC T4…T1	Ex ib IIB T4…T1

[3)] Max. surface temperature T for dust see temperature graphs and manufacturer's instruction.

3 By mounting the sensor type *********F******* directly to the transmitter 5700********** the use of the unit will be modified according to the following:

Sensor type	F025*****F*I***** F025*****F*I***** F050*****F*I***** F050*****F*I***** F100*****F*I***** F100*****F*I***** F100(P,J)****F*I***** F200*****F*I***** F200*****F*I***** F300*****F*I***** CIC A4 F300*****F*7***** F025(A,B,C,E)****F*I***** F050(A,B,C,E)****F*I***** F100(A,B,C,E)****F*I***** F025(A,B,C,E)****F*I***** CIC A1 F050(A,B,C,E)****F*I***** CIC A1 F100(A,B,C,E)****F*I***** CIC A1	F300*****F*I***** F300(A,B,C,E)****F*I*****
Transmitter type 5700*1[1)]*******	Ex ib IIB+H_2 T6...T1 Gb Ex tb [ib] IIIC T [3)]°C Db	Ex ib IIB T6...T1 Gb Ex tb IIIC T [3)]°C Db
Transmitter type 5700*1[2)]*******	Ex ib IIC T6...T1 Gb Ex tb [ib] IIIC T [3)]°C Db	Ex ib IIB T6...T1 Gb Ex tb IIIC T [3)]°C Db
Transmitter type 5700*1[1)] 4******	Ex ib IIB+H_2 T4...T1 Gb	Ex ib IIB T4…T1 Gb
Transmitter type 5700*1[2)] 4******	Ex ib IIC T4…T1 Gb	Ex ib IIB T4…T1 Gb

1) At this place the numeral 2 will be inserted.

2) At this place the numeral 3 or 5 will be inserted.

3) Max. surface temperature T for dust see temperature graphs and manufacturer's instructions.

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 06.0005X issue No.:5	Certificate history: Issue No. 5 (2017-2-6) Issue No. 4 (2015-11-6) Issue No. 3 (2013-8-13) Issue No. 2 (2009-12-11) Issue No. 1 (2007-8-1) Issue No. 0 (2006-7-4)
Status:	**Current**	
Date of Issue:	**2017-02-06** Page 1 of 4	
Applicant:	**Micro Motion, Inc.** 7070 Winchester Circle Boulder, Co. 80301 **United States of America**	
Equipment: *Optional accessory:*	**Sensor type F*** *************, H*** **************, R*** **************, CNG050***************	
Type of Protection:	**Equipment protection by intrinsic safety "i"**	
Marking:	Ex ib IIB/IIC T6 / T5 / T4 ... T1 Ga/Gb Ex ib IIIC T***°C Db IP66/IP67	
Approved for issue on behalf of the IECEx Certification Body:	Dr. F. Eickhoff	
Position:	Deputy Head of Certification Body	
Signature: *(for printed version)*		
Date:	2017-02-06	

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 EXAM GmbH

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 06.0005X

Date of Issue: **2017-02-06** Issue No.: **5**

Manufacturer:

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

Additional Manufacturing location(s):

F-R Tecnologias De Flujo, S.A. de C.V.
Ave. Miguel de Cervantes 111
Chihuahua
Chihuahua 31136
Mexico

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

Emerson Process Management Flow B.V.
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

Emerson SRL
Emerson Street No 4
400641 Cluj-Napoca
Romania

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26 : 2014-10 Edition: 3.0	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga

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

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
DE/BVS/ExTR06.0037/05

Quality Assessment Report:

NO/DNV/QAR08.0005/04
NO/PRE/QAR16.0032/00
NO/PRE/QAR15.0031/00
NO/PRE/QAR16.0033/00
NO/PRE/QAR16.0031/00

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 06.0005X

Date of Issue: **2017-02-06** Issue No.: **5**

Schedule

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

Subject and type:
See Annex

Description:
See Annex

Parameters:
See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

See Annex

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 06.0005X

Date of Issue: **2017-02-06** Issue No.: **5**

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

1 New variants type F100P********** C.I.C. A2, type F100J********** C.I.C. A2, F100S********** and F100H********** have been added.
2 Marking with Equipment Protection Level (EPL) Ga (inside the tube) has been added.
3 New company name for manufacturing location in Mexico
4 Dust marking removed when used with a transmitter type 2200S*********

Annex: BVS_06_0005X_MicroMotion_Annex_issue5.pdf

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 06.0005X issue No.: 5**
Annex

General product information:
Subject and Type

Sensor type F*** *******(I,7)*****
H*** *******(I,7)*****
R*** *******(I,7)*****
CNG050*******(I,7)****

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

F * * * * * * * * * * * * * * * *
H * * * * * * * * * * * * * * * *
R * * * * * * * * * * * * * * * *
CNG 0 5 0 * * * * * * * * * * * *

Marking without influence to the type of protection

Approval
I = IECEx Zone 1, Zone 21, Zone 0/1
7 = IECEx Zone 1, Zone 21; Zone 0/1, F300 for Gas Group IIC

Letter for conduit connections

Letter for electronic interface
2 = aluminum enhanced core processor
3 = stainless enhanced core processor
4 = aluminum enhanced core processor with extender
5 = stainless enhanced core processor with extender
6 = aluminum enhanced core processor for direct host
7 = stainless enhanced core processor for direct host
8 = aluminum enhanced core processor with extender for direct host
9 = stainless enhanced core processor with extender for direct host
A = local core processor
B = local core processor with extender
C = integral 1700/2700
F = integral 5700
D = local core processor for direct host
E = local core processor with extender for direct host
R = with junction box for 9-wire
H = 9 wire junction box with extender
Q = aluminum core processor
V = aluminum core processor with extender
W = aluminum core processor for direct host
Y = aluminum core processor with extender for direct host
S = 9-wire stainless junction box
T = 9-wire Stainless junction box with extender
J = integral 2200S
U = integral 2200S with extender

Marking without influence to the type of protection

A = High Temp. Stainless Steel Tube 350 °C
B = High Temp. HY Tube 350 °C
C = High Temp. Stainless Steel Tube 427 °C
E = High Temp. HY Tube 427 °C
P/J = High Pressure (for F100 only)
S = Stainless Steel Tube
H = Nickel Alloy Tube
Other marking without influence to the type of protection

3 numerals for type of sensor

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.

- When used with an integral mounted junction box (IECEx BVS 09.0022 U), this variation gets the denomination F/H/R/CNG********(S or T)******* for a SS enclosure and F/H/R/CNG******** (R or H)******* for an aluminum enclosure.

- When used with an integral mounted signal processing device type 700 (IECEx BVS 04.0002 U), this variation gets the denomination type F/H/R/CNG********(A, B, D, or E)******* for a SS enclosure and F/H/R/CNG********(Q, V, W or Y)******* for an aluminum enclosure.

- When used with an integral mounted enhanced signal processing device type 800 (IECEx BVS 05.0010 U), this variation gets the denomination type F/H/R/CNG********(3, 5, 7 or 9)******* for a SS enclosure and F/H/R/CNG********(2, 4, 6 or 8)******* for an aluminum enclosure.

- The high temperature version F***(A, B, C or E)********** can be executed with a junction box or transmitter or core processor / enhanced core processor; this variation has therefore always the denomination F***(A, B, C or E)**********.

or

- When used with an integral transmitter type 2200S********* (IECEx BVS 08.0038X), the variation gets the denomination F*** *****(J or U)*******. By mounting the sensor directly to the 2200S transmitter the use of the unit will be modified.

- When used with an integral transmitter type (1 or 2)700********** (IECEx BVS 04.0006X), the variation gets the denomination F*** *****C*******. By mounting the sensor directly to the (1 or 2) 700 transmitter the use of the unit will be modified.

- When used with an integral transmitter type 5700********** (IECEx BVS 14.0090X), the variation gets the denomination F*** *****F*******. By mounting the sensor directly to the 5700 transmitter the use of the unit will be modified.

Modifications to the design which have impact on the electrical parameters are indicated by a Construction Identification Code (CIC). This code consists out of two digits, starting with an A and followed by a sequence number, for example A4. The CIC can be found on the approval label.

Parameters

1 Type F********(R,H,S,T)******* except F***(A,B,C,E)****(R,S)*******
H********(R,H,S,T)*******
R********(R,H,S,T)*******
CNG050*****(R,H,S,T)******

1.1. Drive circuit (connections 1 - 2 or wires 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	C_i		Negligible	
Effective internal inductance	L_i		Per following table	

Sensor type			Inductance [mH]	Coil Resistance [Ω]	Series Resistor [Ω]	Minimum Ambient/Fluid Temp [°C]
F025*****(R,H,S,T)*I***** H025*****(R,H,S,T)*I***** R025*****(R,H,S,T)*I*****		IIC	7.5	68.57	568.63	-100 °C
F050*****(R,H,S,T)*I***** H050*****(R,H,S,T)*I***** R050*****(R,H,S,T)*I***** CNG050*****(R,H,S,T)*I****		IIC	7.5	68.57	568.63	-100 °C
F100(S,H)****(R,H,S,T)*I***** H100*****(R,H,S,T)*I***** R100*****(R,H,S,T)*I*****		IIC	7.5	77.27	71.1	-83 °C
F100(P,J)****(R,H,S,T)*I***** F100(P,J)****(R,H,S,T)*I***** CIC A2		IIC IIC	7.5 26	74.2 205.4	74.1 74.1	-89 °C -87 °C
F200*****(R,H,S,T)*I***** H200*****(R,H,S,T)*I***** R200*****(R,H,S,T)*I*****		IIC	9.4	25.4	148.14	-100 °C
F300*****(R,H,S,T)*I***** H300*****(R,H,S,T)*I*****		IIB	11.75	83.5	7.9	-40 °C
F300*****(R,H,S,T)*I***** CIC A4 H300*****(R,H,S,T)*I***** CIC A4		IIC	11.75	57.8	129	-100 °C
F300*****(R,H,S,T)*7***** H300*****(R,H,S,T)*7*****		IIC	11.75	57.8	129	-100 °C

1.2 Pick-off circuit 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	C_i		Negligible	
Effective internal inductance	L_i		Per following table	

Sensor type			Inductance [mH]	Coil Resistance [Ω]	Series Resistor [Ω]	Minimum Ambient/Fluid Temp [°C]
F025*****(R,H,S,T)*I***** H025*****(R,H,S,T)*I***** R025*****(R,H,S,T)*I*****		IIC	7.5	68.57	0-568.63	-100 °C
F050*****(R,H,S,T) I***** H050*****(R,H,S,T)*I***** R050*****(R,H,S,T)*I***** CNG050*****(R,H,S,T)*I****		IIC	7.5	68.57	0-568.63	-100 °C
F100(S,H)****(R,H,S,T)*I***** H100*****(R,H,S,T)*I***** R100*****(R,H,S,T)*I*****		IIC	7.5	77.27	0-568.83	-83 °C
F100(P,J)****(R,H,S,T)*I***** F100(P,J)****(R,H,S,T)*I***** CIC A2		IIC IIC	0.55 0.55	17.2 17.36	0-568.76 0-568.76	-89 °C -87 °C
F200*****(R,H,S,T)*I***** H200*****(R,H,S,T)*I***** R200*****(R,H,S,T)*I*****		IIC	12.4	88.6	0-568.63	-100 °C
F300*****(R,H,S,T)*I***** H300*****(R,H,S,T)*I*****		IIB	12.4	128.4	0-569.3	-40 °C
F300*****(R,H,S,T)*I***** CIC A4 H300*****(R,H,S,T)*I***** CIC A4		IIC	12.4	88.6	0-568.63	-100 °C
F300*****(R,H,S,T)*7***** H300*****(R,H,S,T)*7*****		IIC	12.4	88.6	0-568.63	-100 °C

1.3 Temperature circuit (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	

Identification resistor circuit (terminals 3 & 4 or wires orange and yellow)

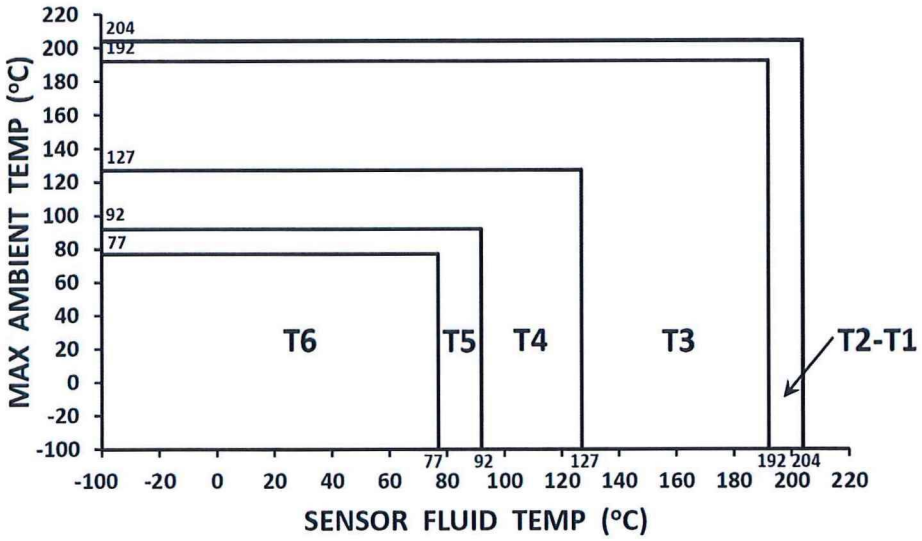
Sensor type	Inductance [mH]	Coil resistance [Ω]	Serial resistor [Ω]	Minimum Ambient/Fluid Temperature [°C]
F300*****(R,H,S,T)*I*****	N/A	N/A	42.2 to 44.3	-40 °C
F300*****(R,H,S,T)*I***** CIC A4	N/A	N/A	42.2 to 44.3	-100 °C
F300*****(R,H,S,T)*7*****	N/A	N/A	42.2 to 44.3	-100 °C
H300*****(R,H,S,T)*I*****	N/A	N/A	42.2 to 44.3	-40 °C
H300*****(R,H,S,T)*I***** CIC A4	N/A	N/A	42.2 to 44.3	-100 °C
H300*****(R,H,S,T)*7*****	N/A	N/A	42.2 to 44.3	-100 °C
F100(P,J)****(R,H,S,T)*I*****	N/A	N/A	46.4 to 48.7	-89 °C
F100(P,J)****(R,H,S,T)*I***** CIC A2	N/A	N/A	46.4 to 48.7	-87 °C

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 graphs:

1.4.1

Sensor type 		
F025*****(R,H,S,T)*I***** H025*****(R,H,S,T)*I***** R025*****(R,H,S,T)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series
F050*****(R,H,S,T)*I***** H050*****(R,H,S,T)*I***** R050*****(R,H,S,T)*I***** CNG050*****(R,H,S,T)*I****	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

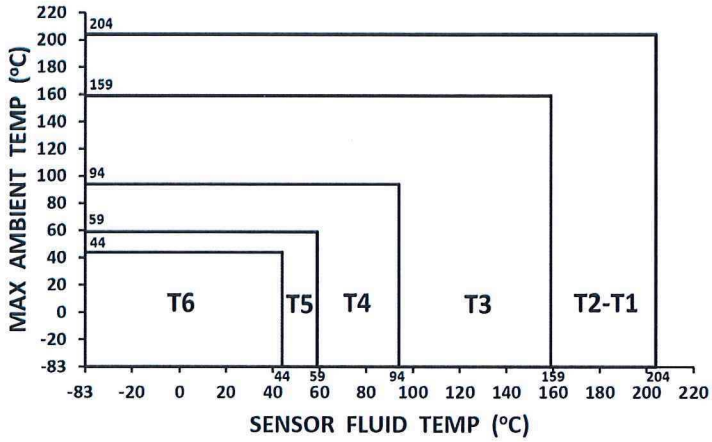
Note 2: The maximum surface temperature T for dust is as follows: T6: T80 °C, T5: T95 °C, T4: T130 °C, T3: T195 °C, T2 and T1: T207 °C.

Note 3: The minimum ambient temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

1.4.2

Sensor type 		
F100(S,H)****(R,H,S,T)*I***** H100*****(R,H,S,T)*I***** R100*****(R,H,S,T)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

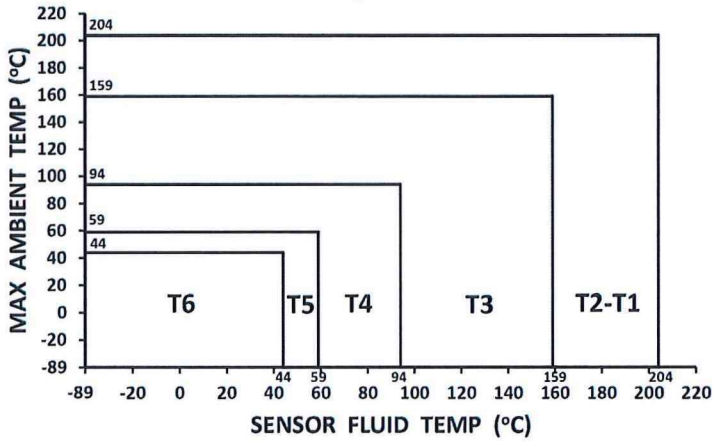
Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 240 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

1.4.3

Sensor type 		
F100(P,J)****(R,H,S,T)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

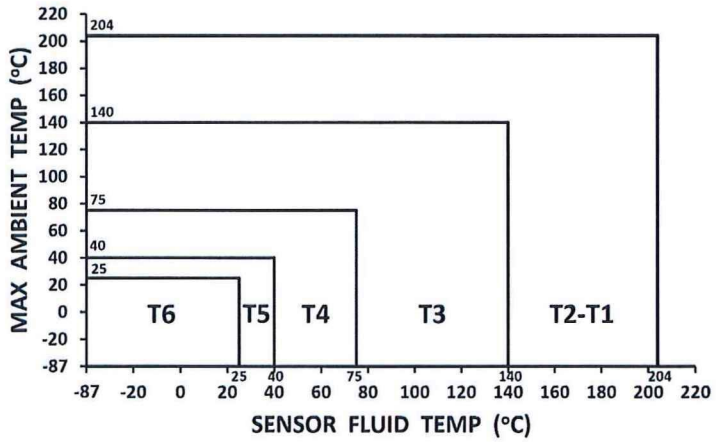
Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 240 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

1.4.4

Sensor type 		
F100(P,J)****(R,H,S,T)*I***** CIC A2	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

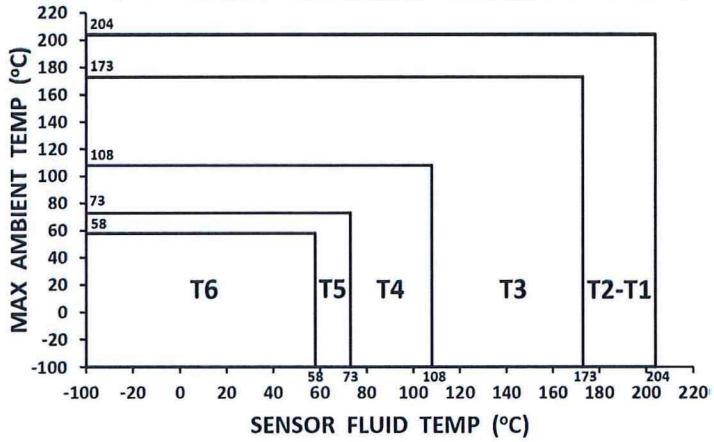
Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 259 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

1.4.5

Sensor type 		
F200*****(R,H,S,T)*I***** H200*****(R,H,S,T)*I***** R200*****(R,H,S,T)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

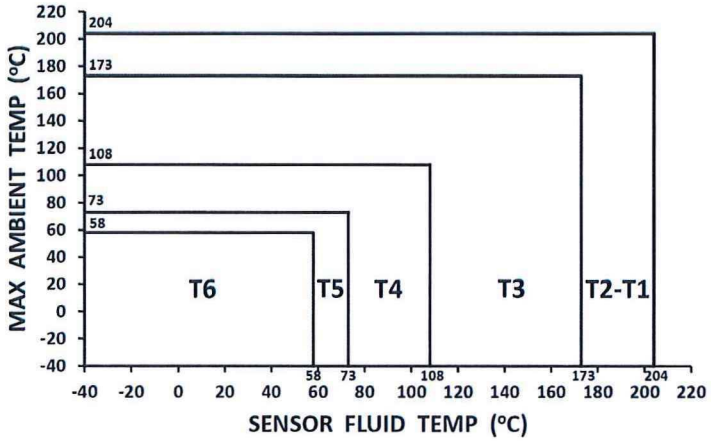
Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: to T1:T 226 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

1.4.6

Sensor type		
F300*****(R,H,S,T)*I***** H300*****(R,H,S,T)*I*****	IIB	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series



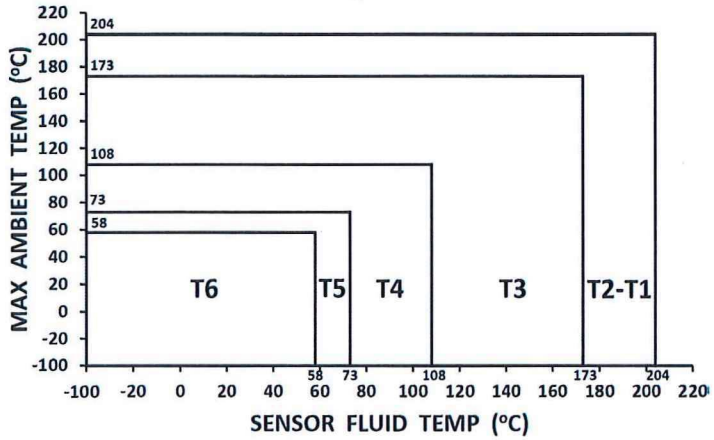
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 226 °C.

Ambient temperature range T_a see Graph

1.4.7

Sensor type		
F300*****(R,H,S,T)*I***** CIC A4 H300*****(R,H,S,T)*I***** CIC A4	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series
F300*****(R,H,S,T)*7***** H300*****(R,H,S,T)*7*****	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T6: T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 226 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

2 Type F***(A,B,C,E)****(R,S)******* with J-box.

2.1 Drive circuit (connections 1 - 2 or wires 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	C_i		Negligible	
Effective internal inductance	L_i		Per following table	

Sensor type  or 		Inductance [mH]	Coil Resistance [Ω]	Series Resistor [Ω]	Minimum Ambient/Fluid Temp [°C]
F025(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	55.3	-50
F025(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	38.5	-50
F050(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	55.3	-50
F050(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	38.5	-50
F100(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	55.3	-50
F100(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	38.3	-50
F300(A,B,C,E)****(R,S)*I*****	IIB	7.75	54.3	19.8	-50

2.2 Pick-off circuit (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	C_i		Negligible	
Effective internal inductance	L_i		Per following table	

Sensor type  or 		Inductance [mH]	Coil Resistance [Ω]	Series Resistor [Ω]	Minimum Ambient/Fluid Temp [°C]
F025(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	0-569.2	-50
F025(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	0-569.2	-50
F050(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	0-569.2	-50
F050(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	0-569.2	-50
F100(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	0-569.2	-50
F100(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	0-569.2	-50
F300(A,B,C,E)****(R,S)*I*****	IIB	6.5	41.1	0-569.2	-50

2.3 Temperature circuit (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	

Identification resistor circuit (terminals 3 & 4 or wires orange and yellow)

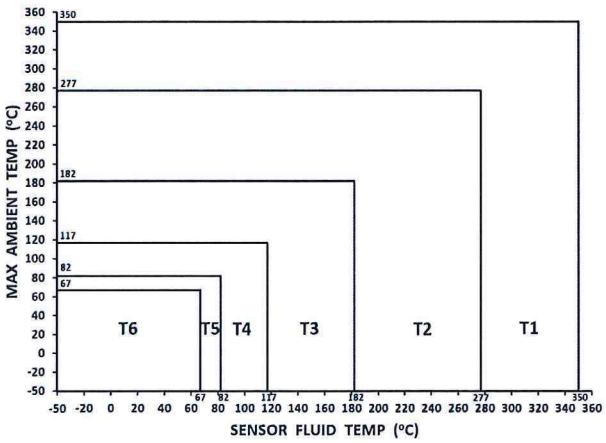
Sensor type	Inductance [mH]	Coil resistance [Ω]	Serial resistor [Ω]	Minimum Ambient/ Fluid Temperature [°C]
F025(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50 °C
F025(A,B,C,E)****(R,S)*I***** C.I.C. A1	N/A	N/A	42.2 to 44.3	-50 °C
F050(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50 °C
F050(A,B,C,E)****(R,S)*I***** C.I.C. A1	N/A	N/A	42.2 to 44.3	-50 °C
F100(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50 °C
F100(A,B,C,E)****(R,S)*I***** C.I.C. A1	N/A	N/A	42.2 to 44.3	-50 °C
F300(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50 °C

2.4 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 graphs:

2.4.1

Sensor type	 or 		
F025(A,B)****(R,S)*I*****		IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series
F025(A,B)****(R,S)*I***** CIC A1		IIC	
F050(A,B)****(R,S)*I*****		IIC	
F050(A,B)****(R,S)*I***** CIC A1		IIC	
F100(A,B)****(R,S)*I*****		IIC	
F100(A,B)****(R,S)*I***** CIC A1		IIC	
F300(A,B)****(R,S)*I*****		IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

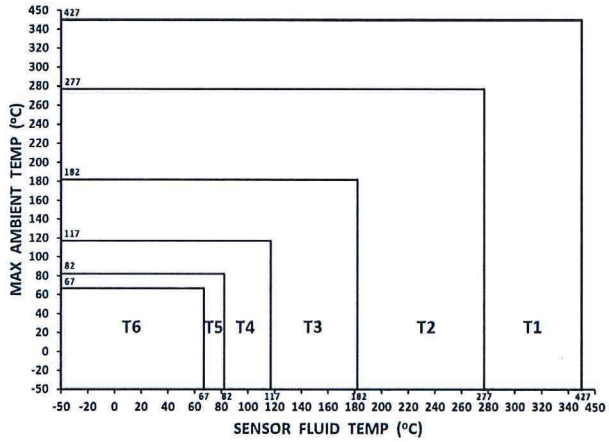
Note 2: The maximum surface temperature for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2:T 290 °C, T1:T 363 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

2.4.2

Sensor type	 or 		
F025(C,E)****(R,S)*I*****		IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series
F025(C,E)****(R,S)*I***** CIC A1		IIC	
F050(C,E)****(R,S)*I*****		IIC	
F050(C,E)****(R,S)*I***** CIC A1		IIC	
F100(C,E)****(R,S)*I*****		IIC	
F100(C,E)****(R,S)*I***** CIC A1		IIC	
F300(C,E)****(R,S)*I*****		IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2:T 290 °C, T1:T 440 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

3 Type F********(2-9,A,B,D,E,Q,V,W or Y)******* with integral core-processor, H********(2-9,A,B,D,E,Q,V,W or Y)*******, R********(2-9,A,B,D,E,Q,V,W or Y)*******, CNG050*****(2-9,A,B,D,E,Q,V,W or Y)****** except type F***(A,B,C,E)****(2,3,6,7,A,D,Q,W)*******

3.1 Input circuits (terminals 1-4)

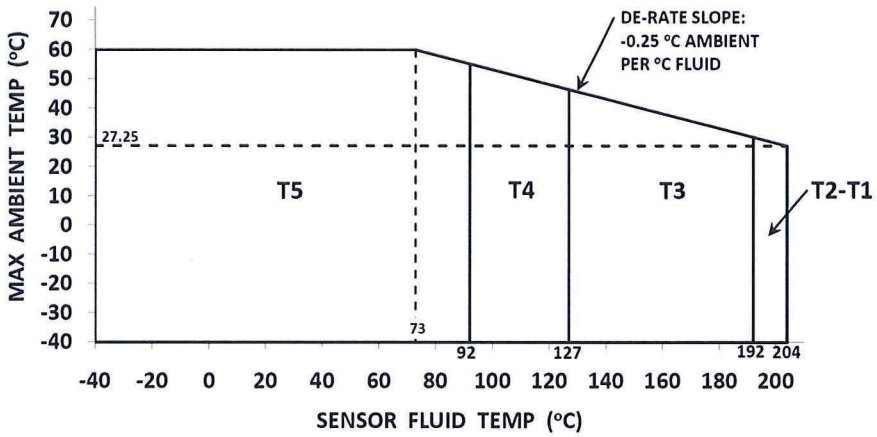
Voltage	U_i	DC	17.3	V
Current	I_i		484	mA
Power	P_i		2.1	W
Effective internal capacitance	C_i		2200	pF
Effective internal inductance	L_i		30	µH

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:

3.2.1

Sensor type		
F025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	IIC	With integral core processor
F050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CNG050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I****	IIC	



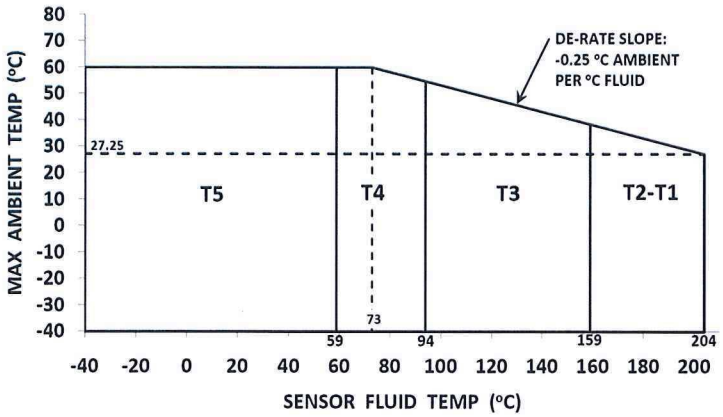
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 207 °C.

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

3.2.2

Sensor type		
F100(S,H)****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** F100(P,J)****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	IIC	With integral core processor



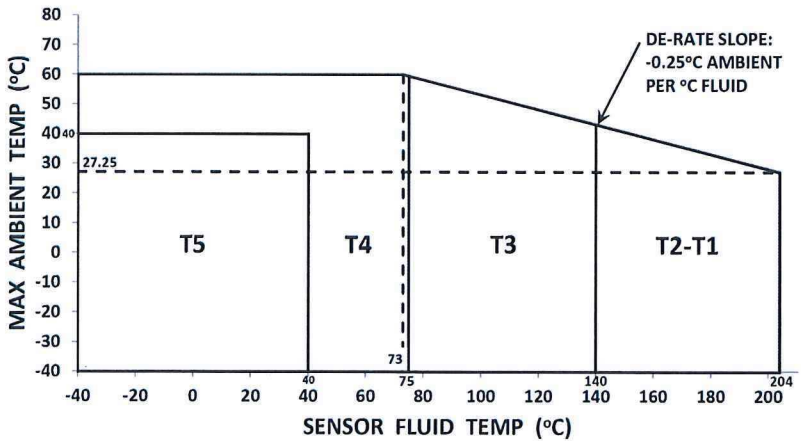
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 240 °C.

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

3.2.3

Sensor type		
F100(P,J)****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A2	IIC	With integral core processor



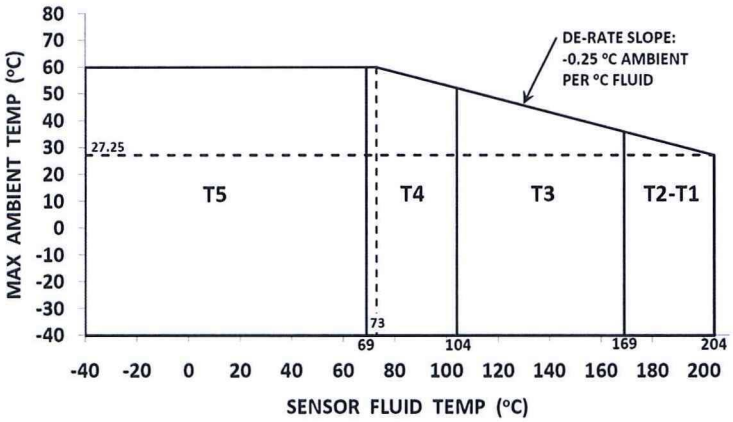
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 259 °C.

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

3.2.4

Sensor type		
F200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	IIC	With integral core processor



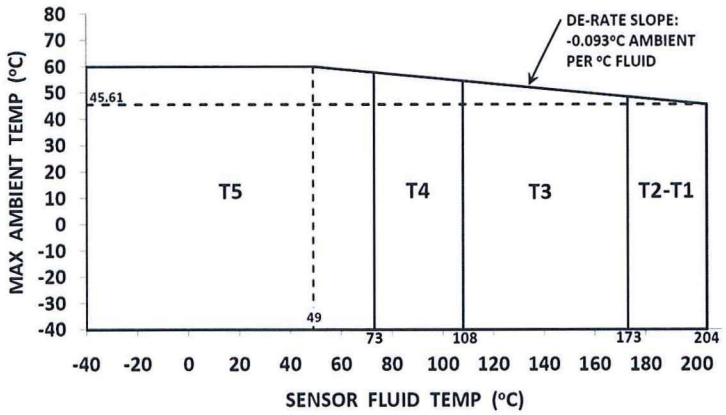
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 230 °C.

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

3.2.5

Sensor type		
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	IIB	With integral core processor
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A4 H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A4	IIC	
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*7***** H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*7*****	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 226 °C.

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

4 Type F***(A,B,C,E)****(2,3,6,7,A,D,Q,W)******* with integral core processor.


or


4.1 Input circuits (terminals 1-4)

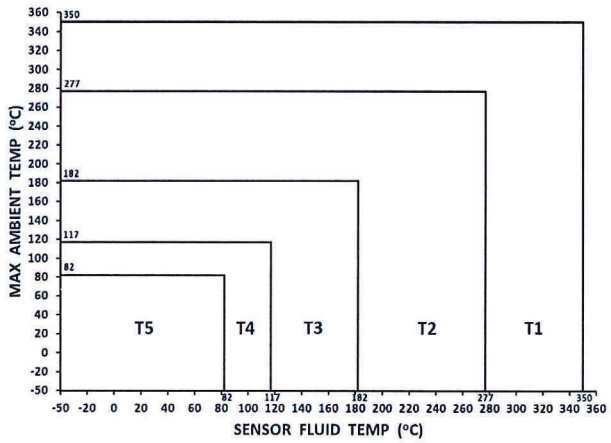
Voltage	U_i	DC	17.3	V
Current	I_i		484	mA
Power	P_i		2.1	W
Effective internal capacitance	C_i		2200	pF
Effective internal inductance	L_i		30	µH

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 graphs:

4.2.1

Sensor type	 or 	
F025(A,B)****(2,3,6,7,A,D,Q,W)*I*****	IIC	With integral core processor
F025(A,B)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	IIC	
F050(A,B)****(2,3,6,7,A,D,Q,W)*I*****	IIC	
F050(A,B)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	IIC	
F100(A,B)****(2,3,6,7,A,D,Q,W)*I*****	IIC	
F100(A,B)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	IIC	
F300(A,B)****(2,3,6,7,A,D,Q,W)*I*****	IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 363 °C.

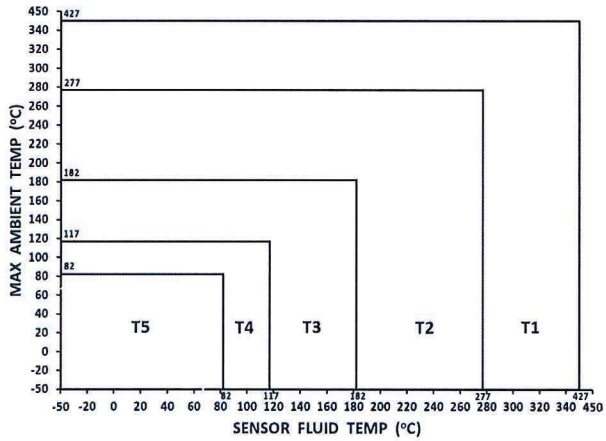
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 60 °C even at a maximum ambient temperature of 60 °C.

4.2.2

Sensor type	 or 	
F025(C,E)****(2,3,6,7,A,D,Q,W)*I*****	IIC	With integral core processor
F025(C,E)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	IIC	
F050(C,E)****(2,3,6,7,A,D,Q,W)*I*****	IIC	
F050(C,E)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	IIC	
F100(C,E)****(2,3,6,7,A,D,Q,W)*I*****	IIC	
F100(C,E)****(2,3,6,7,A,D,Q,W)*I***** CIC A1	IIC	
F300(C,E)****(2,3,6,7,A,D,Q,W)*I*****	IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 440 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 60 °C even at a maximum ambient temperature of 60 °C.

5 Type F********(J,U)*******, H********(J,U)*******, R********(J,U)*******, CNG050*****(J,U)****** with 2200S transmitter except type F***(A,B,C,E)****J*******

5.1 Input circuits (terminals 1-(3,4,5))

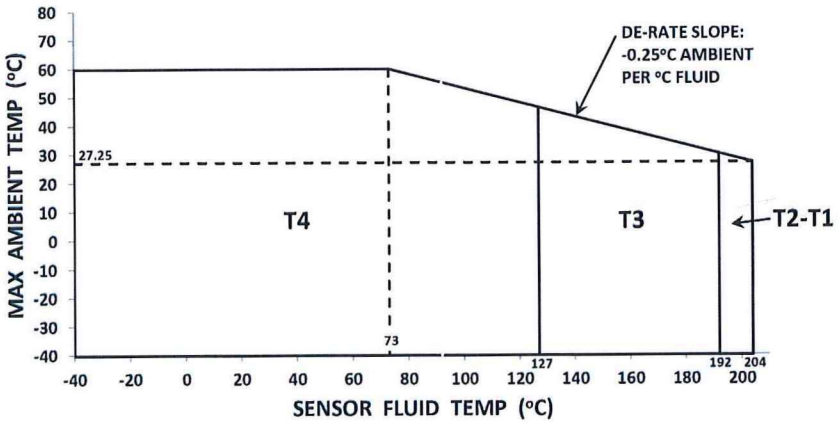
Voltage	U_i	DC	28	V
Current	I_i		120	mA
Power	P_i		0.84	W
Effective internal capacitance	C_i		2200	pF
Effective internal inductance	L_i		45	µH

5.2 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:

5.2.1

Sensor type		
F025*****(J,U)*I***** H025*****(J,U)*I***** R025*****(J,U)*I*****	IIC	With integral 2200S
F050*****(J,U)*I***** H050*****(J,U)*I***** R050*****(J,U)*I***** CNG050*****(J,U)*I****	IIC	

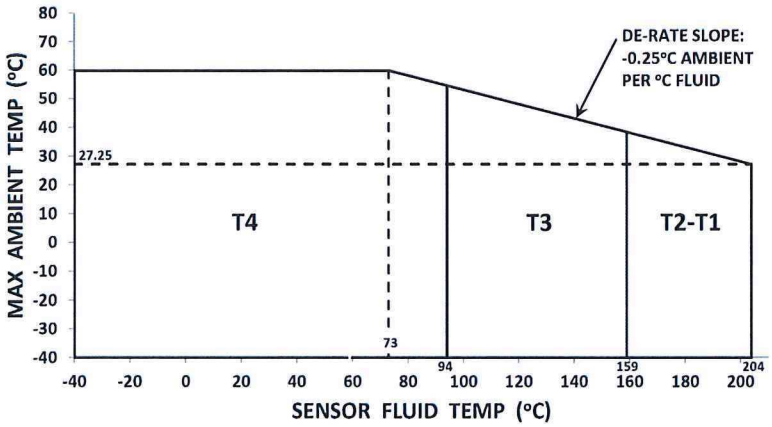


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

5.2.2

Sensor type		
F100(S,H)****(J,U)*I***** F100(P,J)****(J,U)*I***** H100*****(J,U)*I***** R100*****(J,U)*I*****	IIC	With integral 2200S

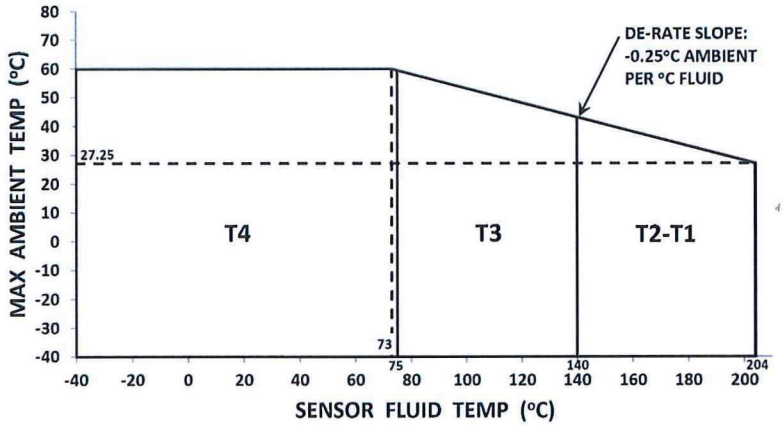


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

5.2.3

Sensor type		
F100(P,J)****(J,U)*I***** CIC A2	IIC	With integral 2200S

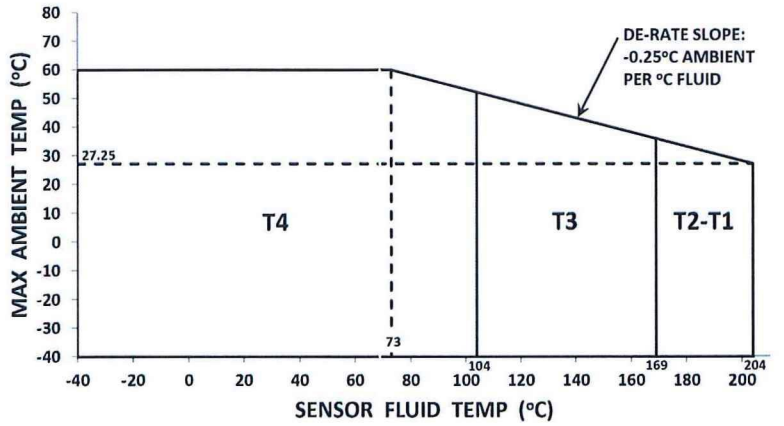


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

5.2.4

Sensor type		
F200*****(J,U)*I***** H200*****(J,U)*I***** R200*****(J,U)*I*****	IIC	With integral 2200S

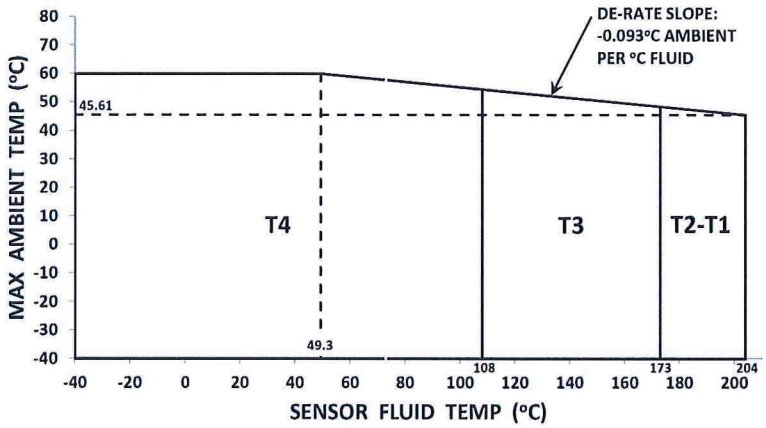


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

5.2.5

Sensor type		
F300*****(J,U)*I***** H300*****(J,U)*I*****	IIB	With integral 2200S
F300*****(J,U)*I***** CIC A4 H300*****(J,U)*I***** CIC A4	IIC	
F300*****(J,U)*7***** H300*****(J,U)*7*****	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

6 Type F***(A,B,C,E)****J******* with integral 2200S transmitter


or


6.1 Input circuits (terminals 1-(3,4,5))

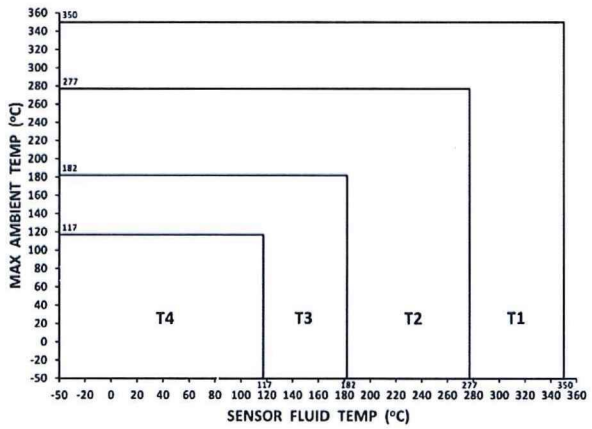
Voltage	U_i	DC	28	V
Current	I_i		120	mA
Power	P_i		0.84	W
Effective internal capacitance	C_i		2200	pF
Effective internal inductance	L_i		45	µH

6.2 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:

6.2.1

Sensor type	 or 	
F025(A,B)****J*I*****	IIC	With integral 2200S
F025(A,B)****J*I***** CIC A1	IIC	
F050(A,B)****J*I*****	IIC	
F050(A,B)****J*I***** CIC A1	IIC	
F100(A,B)****J*I*****	IIC	
F100(A,B)****J*I***** CIC A1	IIC	
F300(A,B)****J*I*****	IIB	



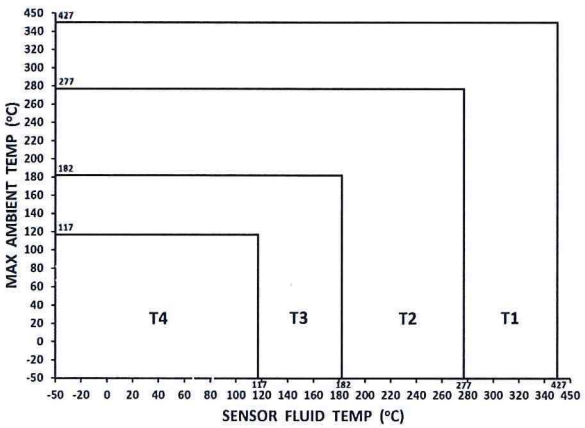
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range T_a see Graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 60 °C even at a maximum ambient temperature of 60 °C.

6.2.2

Sensor type	 or 	
F025(C,E)****J*I*****	IIC	With integral 2200S
F025(C,E)****J*I***** CIC A1	IIC	
F050(C,E)****J*I*****	IIC	
F050(C,E)****J*I***** CIC A1	IIC	
F100(C,E)****J*I*****	IIC	
F100(C,E)****J*I***** CIC A1	IIC	
F300(C,E)****J*I*****	IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range T_a see Graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 60 °C even at a maximum ambient temperature of 60 °C.

7 Type F********(C,F)*I*****, H********(C,F)*I***** ,R********(C,F)*I*****, CNG050*****(C,F)*I**** except Type F***(A,B,C,E)****C*I*****

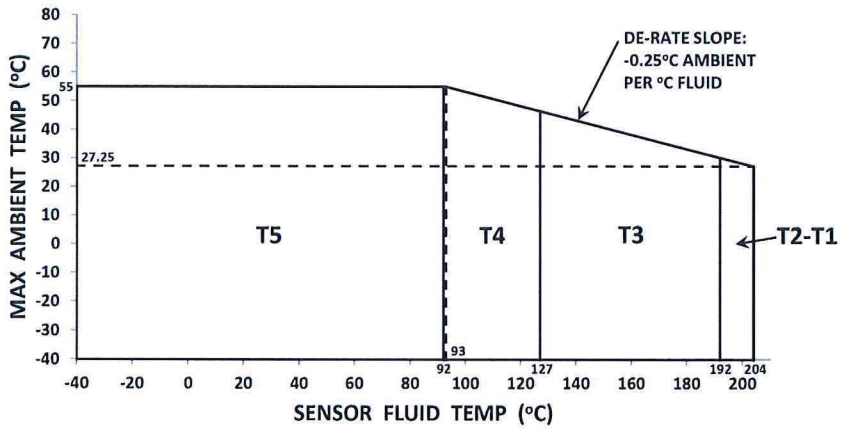
7.1 Electrical parameters see IECEx BVS 04.0006X for the transmitter type *700**********

7.2 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:

7.2.1

Sensor type		
F025*****C*I***** H025*****C*I***** R025*****C*I*****	IIC	With integral 1700 or 2700
F050*****C*I***** H050*****C*I***** R050*****C*I***** CNG050 *****C*I****	IIC	

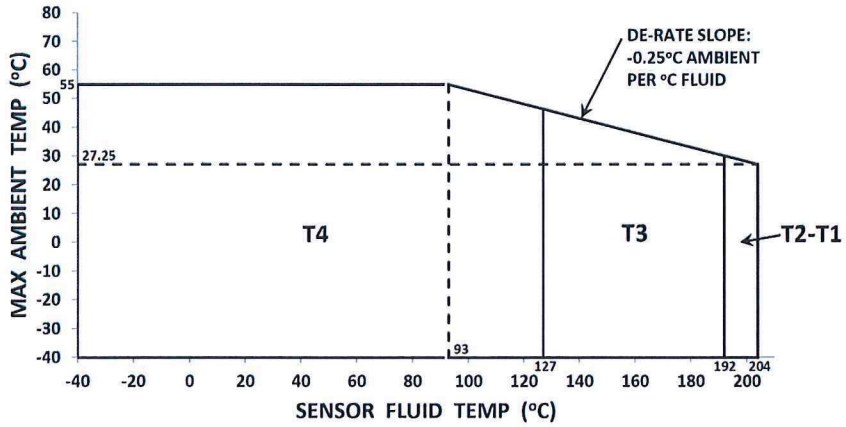


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 207 °C.

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

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

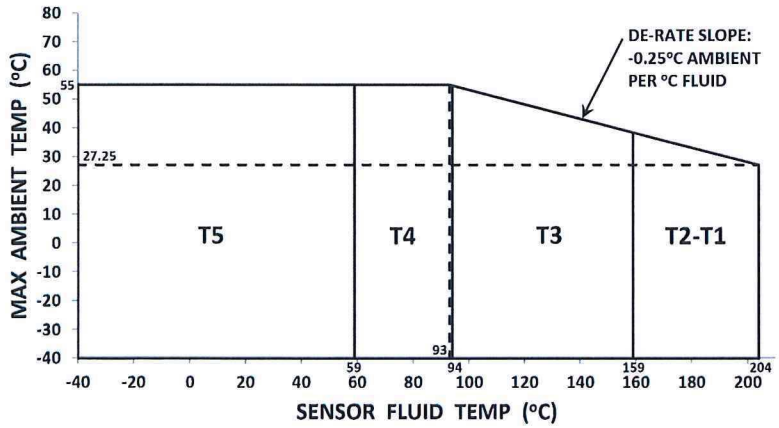


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

7.2.2

Sensor type		
F100(S,H)****C*I***** H100*****C*I***** R100*****C*I*****	IIC	With integral 1700 or 2700

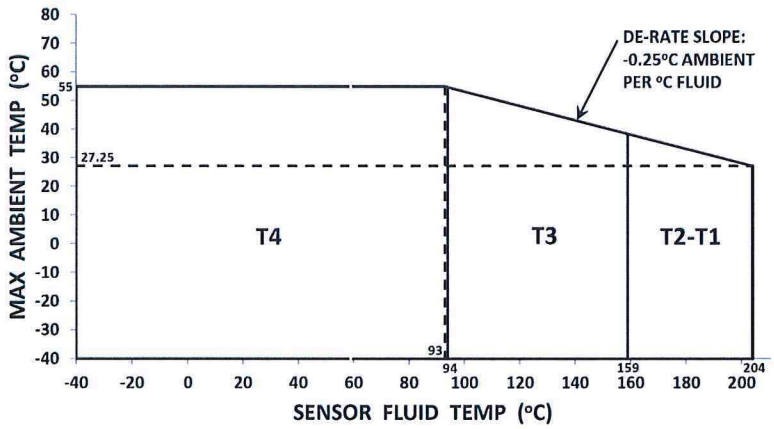


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 240 °C.

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

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

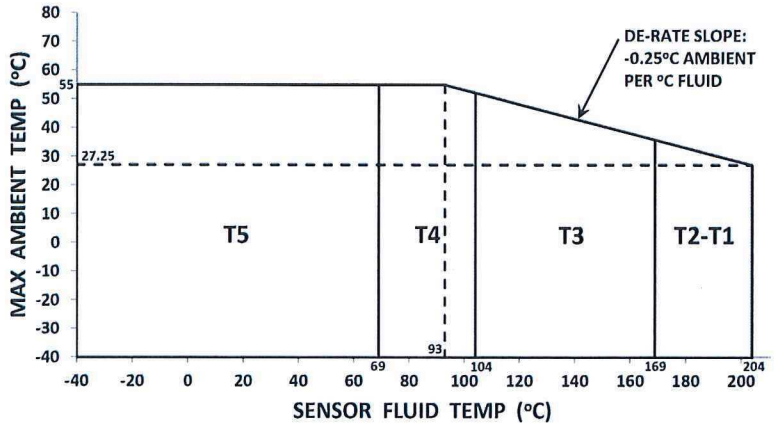


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

7.2.3

Sensor type		
F200*****C*I***** H200*****C*I***** R200*****C*I*****	IIC	With integral 1700 or 2700

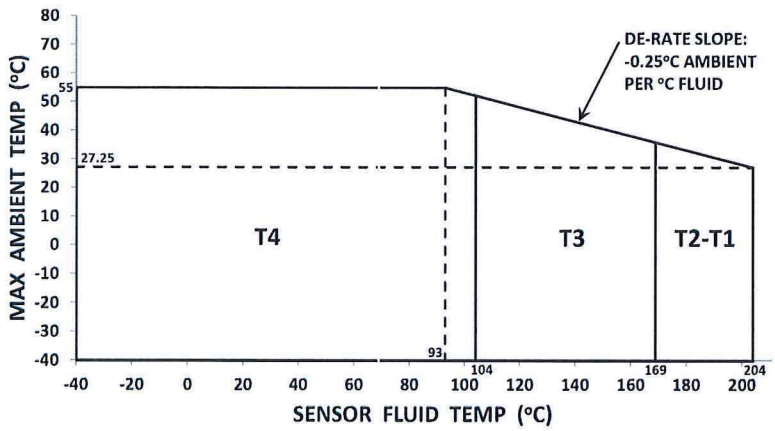


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 230 °C.

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

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

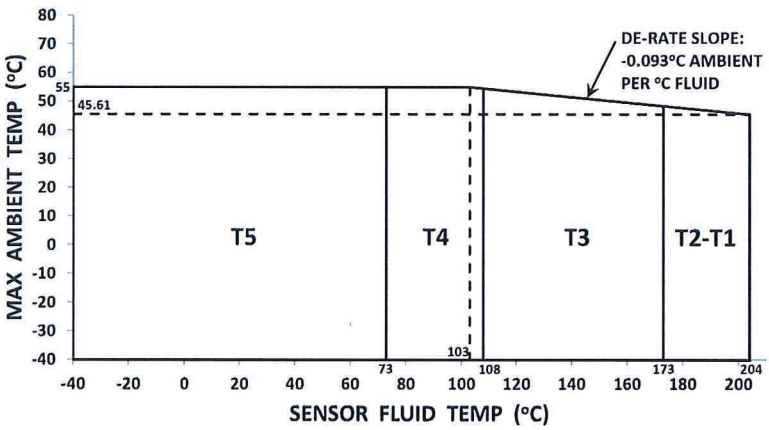


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

7.2.4

Sensor type		
F300*****C*I***** H300*****C*I*****	IIB	With integral 1700 or 2700
F300*****C*I***** CIC A4 H300*****C*I***** CIC A4	IIC	
F300*****C*7***** H300*****C*7*****	IIC	

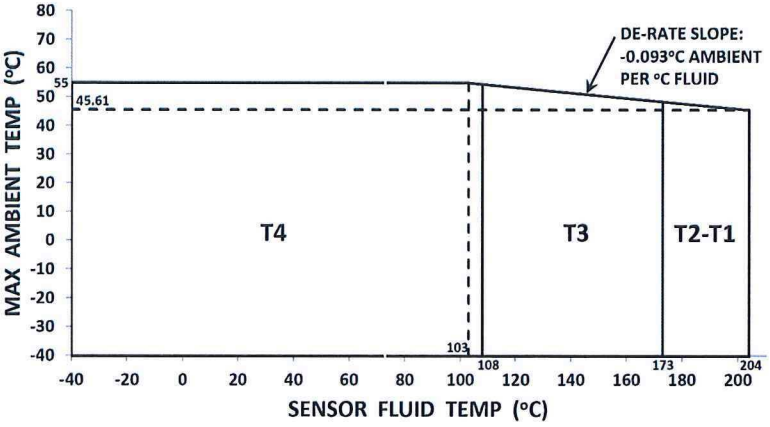


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 226 °C.

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

8 Type F***(A,B,C,E)****C*I*****

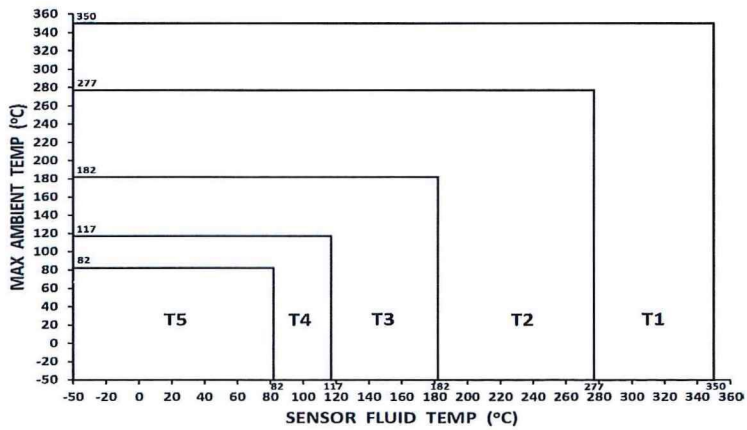
8.1 Electrical parameters see IECEx BVS 04.0006X for the transmitter type *700**********

8.2 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:

8.2.1

Sensor type	 or 	
F025(A,B)****C*I*****	IIC	With Integral 1700 or 2700
F025(A,B)****C*I***** CIC A1	IIC	
F050(A,B)****C*I*****	IIC	
F050(A,B)****C*I***** CIC A1	IIC	
F100(A,B)****C*I*****	IIC	
F100(A,B)****C*I***** CIC A1	IIC	
F300(A,B)****C*I*****	IIB	



Note1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

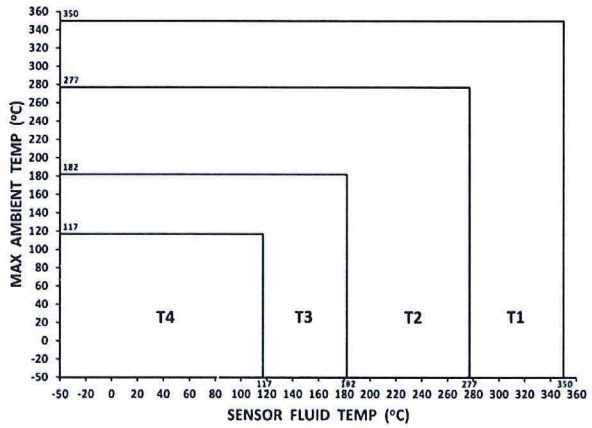
Note 2: The maximum surface temperature T for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 363 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range	T_a	see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 55 °C even at a maximum ambient temperature of 55 °C.

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



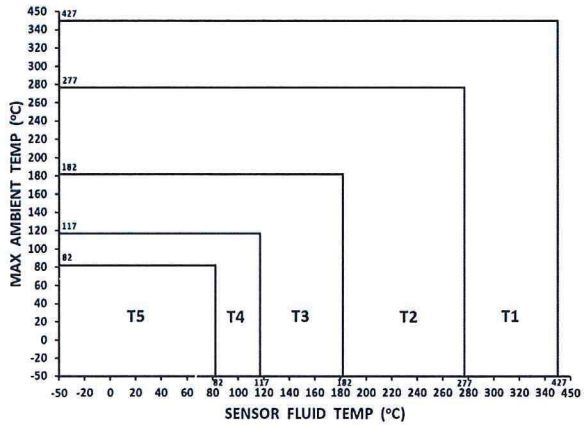
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range T_a see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 55 °C even at a maximum ambient temperature of 55 °C.

8.2.2

Sensor type	 or 		
F025(C,E)****C*I*****		(IIC)	With Integral 1700 or 2700
F025(C,E)****C*I***** CIC A1		(IIC)	
F050(C,E)****C*I*****		(IIC)	
F050(C,E)****C*I***** CIC A1		(IIC)	
F100(C,E)****C*I*****		(IIC)	
F100(C,E)****C*I***** CIC A1		(IIC)	
F300(C,E)****C*I*****		(IIB)	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

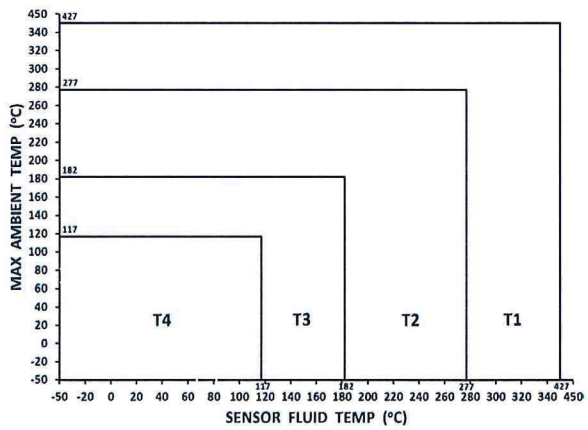
Note 2: The maximum surface temperature T for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 440 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 55 °C even at a maximum ambient temperature of 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 see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 55 °C even at a maximum ambient temperature of 55 °C.

9 Type F*** *****F*I*****, H*** *****F*I*****,R*** *****F*I*****, CNG050 *****F*I**** except Type F*** (A, B, C or E)****F*I*****

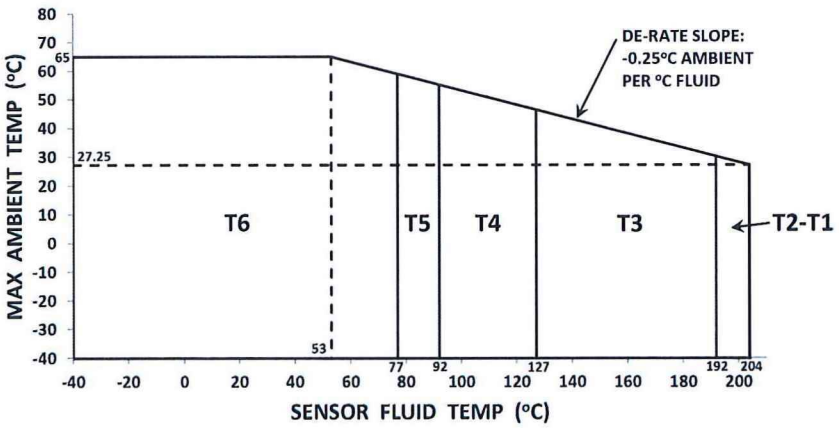
9.1 Electrical parameters see IECEx BVS 14.0090X for the transmitter type 5700**********

9.2 Temperature class / maximum 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:

9.2.1

Sensor type			
F025*****F*I***** H025*****F*I***** R025*****F*I*****		IIC	With integral 5700
F050*****F*I***** H050*****F*I***** R050*****F*I*****		IIC	

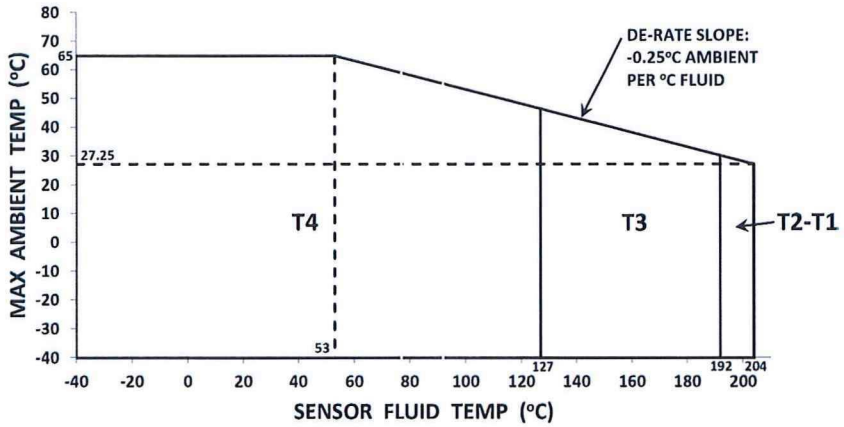


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6: T 80 °C, T5: T 95 °C, T4: T 130 °C, T3: T 195 °C, T2 to T1:T 207 °C.

Ambient temperature range	T_a	-40 °C to +65 °C

When used with 5700 Transmitter with Wireless HART Output Add on Options Code "PI" or "NI" (5700*1*A*IA*** *****(NI,PI):

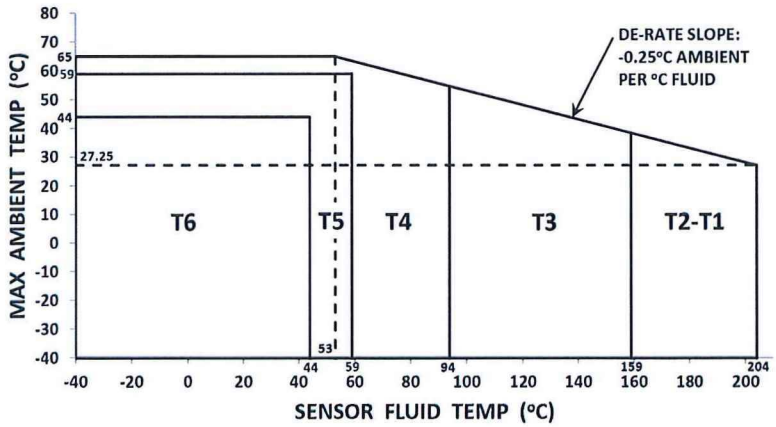


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range T_a -40 °C to +65 °C

9.2.2

Sensor type		
F100(S,H)****F*I***** F100(P,J)****F*I***** H100*****F*I***** R100*****F*I*****	IIC	With integral 5700

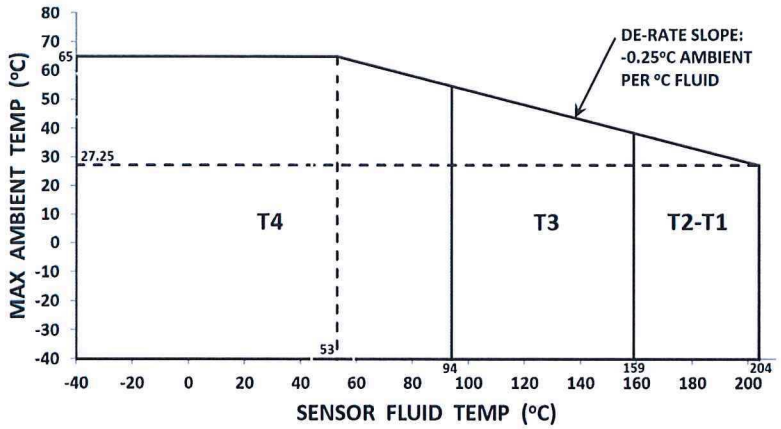


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 240 °C.

Ambient temperature range T_a -40 °C to +65 °C

When used with 5700 Transmitter with Wireless HART Output Add on Options Code "PI" or "NI" (5700*1*A*IA*** *****(NI,PI):

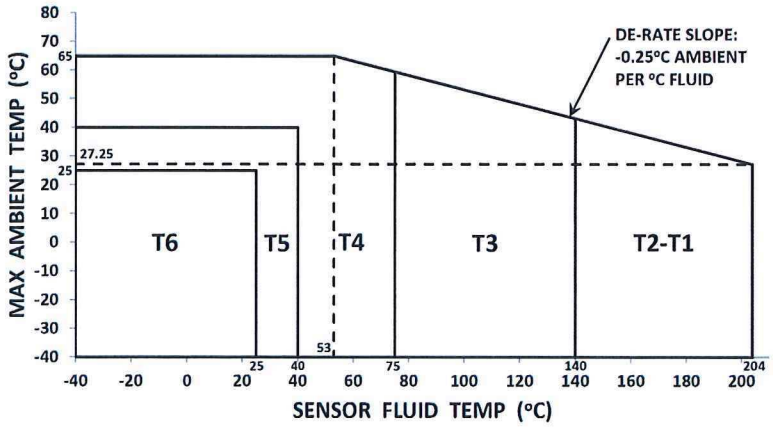


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range T_a -40 °C to +56 °C

9.2.3

Sensor type		
F100(P,J)****F*I***** CIC A2	IIC	With integral 5700

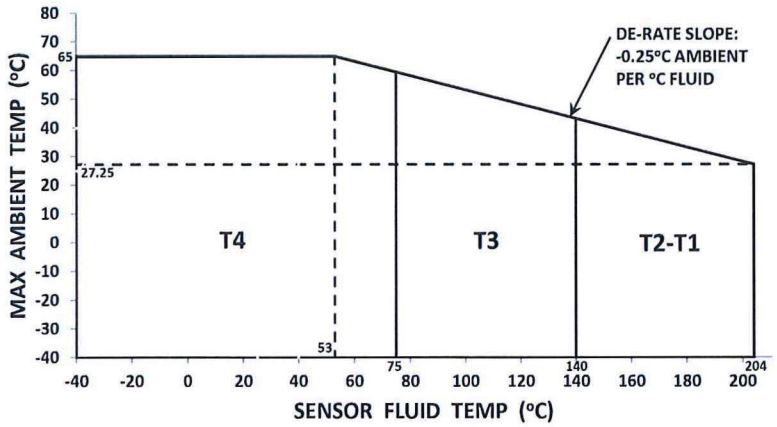


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 259 °C.

Ambient temperature range T_a -40 °C to +65 °C

When used with 5700 Transmitter with Wireless HART Output Add on Options Code "PI" or "NI" (5700*1*A*IA*** *****(NI,PI):

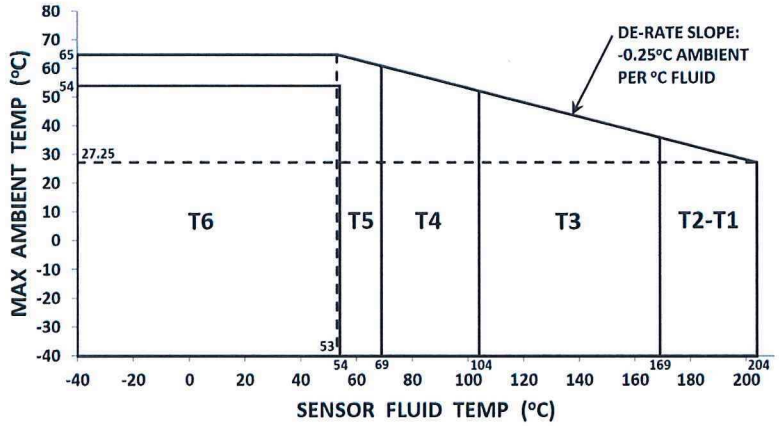


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range T_a -40 °C to +65 °C

9.2.4

Sensor type		
F200*****F*I***** H200*****F*I***** R200*****F*I*****	IIC	With integral 5700

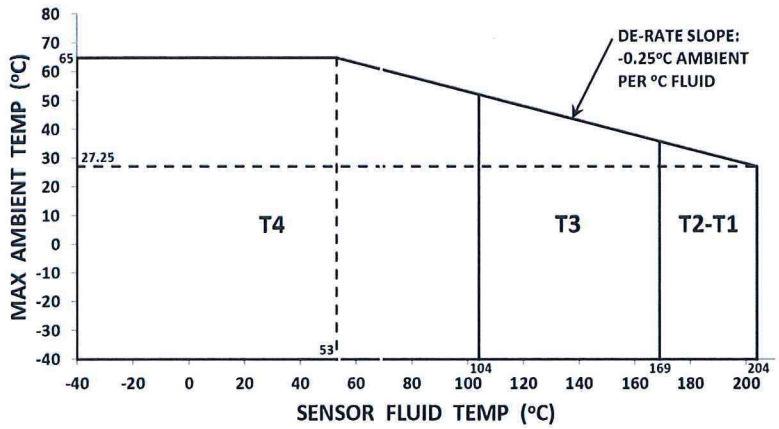


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 230 °C.

Ambient temperature range	T_a	-40 °C to +65 °C

When used with 5700 Transmitter with Wireless HART Output Add on Options Code "PI" or "NI" (5700*1*A*IA*** *****(NI,PI):

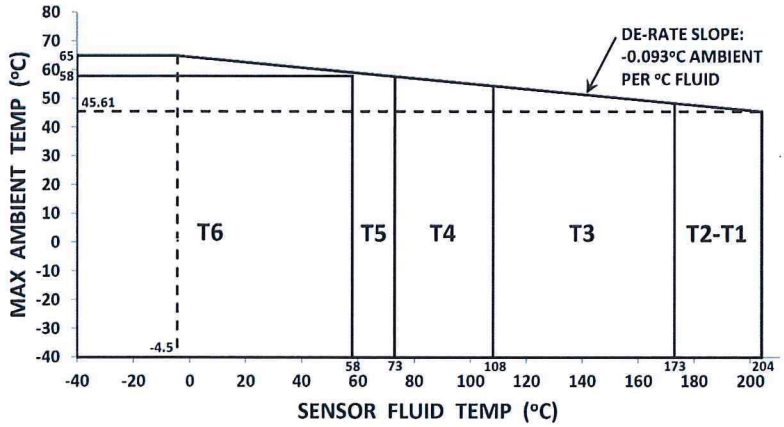


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range	T_a	-40 °C to +65 °C

9.2.5

Sensor type		
F300*****F*I***** H300*****F*I*****	IIB	With integral 5700
F300*****F*I***** CIC A4 H300*****F*I***** CIC A4	IIC	
F300*****F*7***** H300*****F*7*****	IIC	

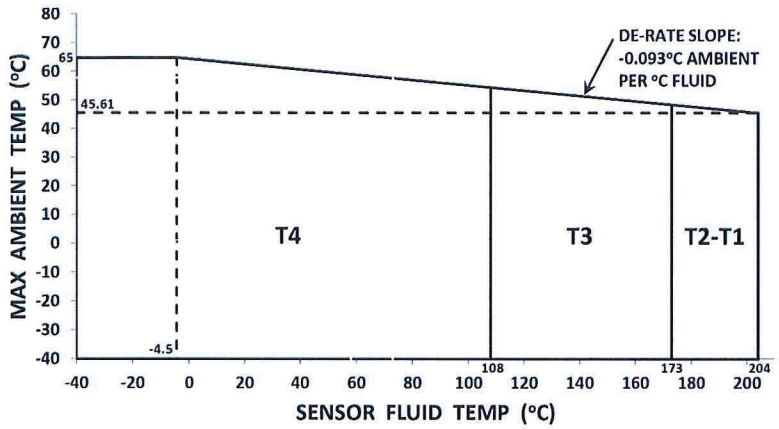


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 226 °C.

Ambient temperature range	T_a	-40 °C to +65 °C

When used with 5700 Transmitter with Wireless HART Output Add on Options Code "PI" or "NI" (5700*1*A*IA*** *****(NI,PI):



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

Ambient temperature range T_a -40 °C to +65 °C

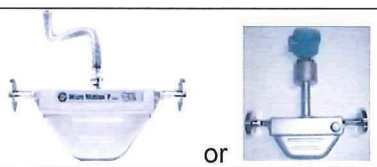
10 Type F*** (A, B, C or E) ****F*I*****

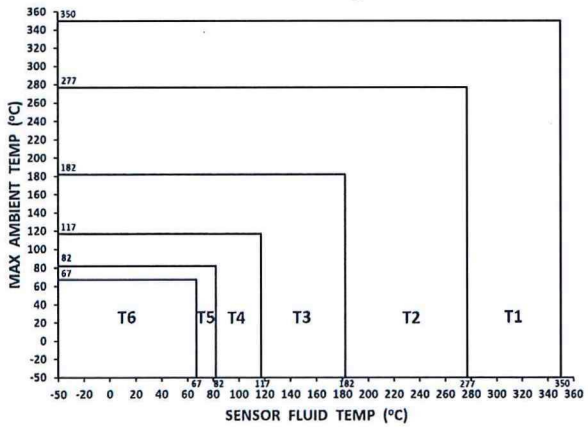
10.1 Electrical parameters see IECEx BVS 14.0090 X for the transmitter type 5700

10.2 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:

10.2.1

Sensor type		
F025(A,B)****F*I*****	IIC	With integral 5700
F025(A,B)****F*I***** CIC A1	IIC	
F050(A,B)****F*I*****	IIC	
F050(A,B)****F*I***** CIC A1	IIC	
F100(A,B)****F*I*****	IIC	
F100(A,B)****F*I***** CIC A1	IIC	
F300(A,B)****F*I*****	IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

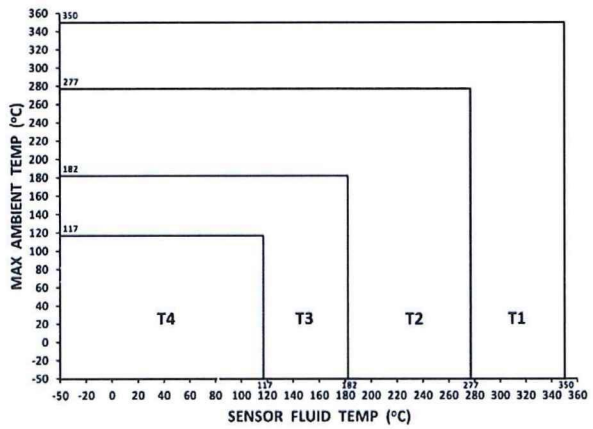
Note 2: The maximum surface temperature T for dust is as follows: T6:T 8 0°C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 363°C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 65 °C even at a maximum ambient temperature of 65 °C.

When used with 5700 Transmitter with Wireless HART Output Add on Options Code "PI" or "NI" (5700*1*A*IA*** *****(NI,PI):

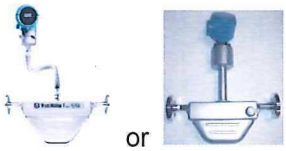


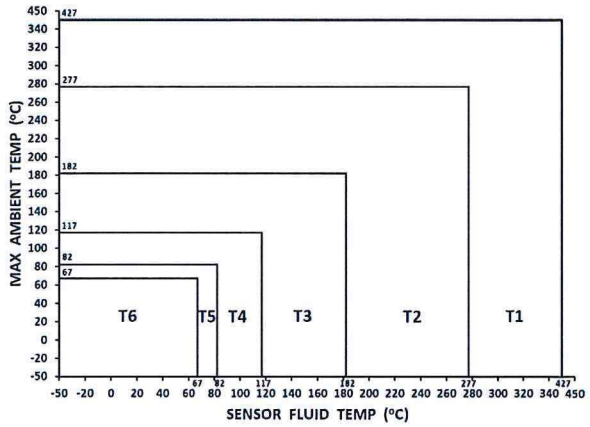
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range T_a see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 65 °C even at a maximum ambient temperature of 65 °C.

10.2.2

Sensor type	 or	
F025(C,E)****F*I*****	IIC	With integral 5700
F025(C,E)****F*I***** CIC A1	IIC	
F050(C,E)****F*I*****	IIC	
F050(C,E)****F*I***** CIC A1	IIC	
F100(C,E)****F*I*****	IIC	
F100(C,E)****F*I***** CIC A1	IIC	
F300(C,E)****F*I*****	IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

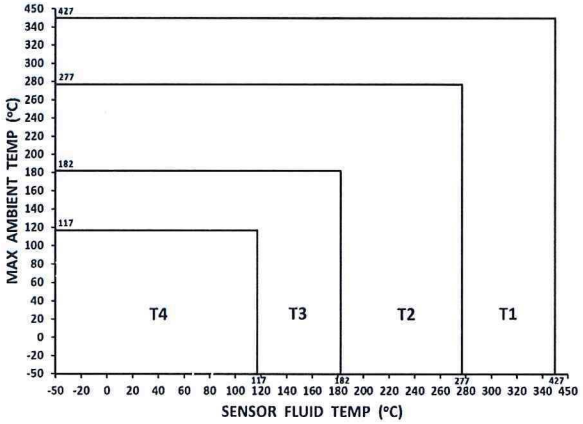
Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 440 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 65 °C even at a maximum ambient temperature of 65 °C.

When used with 5700 Transmitter with Wireless HART Output Add on Options Code "PI" or "NI" (5700*1*A*IA*** *****(NI,PI):



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

Ambient temperature range	T_a	see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 65 °C even at a maximum ambient temperature of 65 °C.

"Conditions of Use" for Ex Equipment if any:

1 By mounting the sensor type ********(J,U)******* directly to the transmitter 22**S********** the use of the unit will be modified according to the following:

Sensor type	F025*****(J,U)*I***** F050*****(J,U)*I***** F100(S,H)****(J,U)*I***** F100(P,J)****(J,U)*I***** F200*****(J,U)*I***** F300*****(J,U)*I***** CIC A4 F300*****(J,U)*7***** H025*****(J,U)*I***** H050*****(J,U)*I***** H100*****(J,U)*I***** H200*****(J,U)*I***** H300*****(J,U)*I***** CIC A4 H300*****(J,U)*7***** R025*****(J,U)*I***** R050*****(J,U)*I***** R100*****(J,U)*I***** R200*****(J,U)*I***** CNG050*****(J,U)*I**** F025(A,B,C,E)****J*I***** F050(A,B,C,E)****J*I***** F100(A,B,C,E)****J*I***** F025(A,B,C,E)****J*I***** CIC A1 F050(A,B,C,E)****J*I***** CIC A1 F100(A,B,C,E)****J*I***** CIC A1	F300*****(J,U)*I***** F300(A,B,C,E)****J*I***** H300*****(J,U)*I*****
Transmitter type 2200S*(H or K)*1******	Ex ib IIC T4...T1	Ex ib IIB T4...T1
Transmitter type 2200S*(5 or 6)*1******	Ex ib IIC T4...T1	Ex ib IIB T4...T1

3) Max. surface temperature T for dust see temperature graphs and manufacturer's instruction.

2 By mounting the sensor type ********C******* directly to the transmitter *700********** the use of the unit will be modified according to the following:

Sensor	F025*****C*I***** F050*****C*I***** F100(S,H)****C*I***** F200*****C*I***** F300*****C*I***** CIC A4 F300*****C*7***** H025*****C*I***** H050*****C*I***** H100*****C*I***** H200*****C*I***** H300*****C*I***** CIC A4 H300*****C*7***** R025*****C*I***** R050*****C*I***** R100*****C*I***** R200*****C*I***** CNG050*****C*I**** F025(A,B,C,E)****C*I***** F050(A,B,C,E)****C*I***** F100(A,B,C,E)****C*I***** F025(A B,C,E)****C*I***** CIC A1 F050(A,B,C,E)****C*I***** CIC A1 F100(A,B,C,E)****C*I***** CIC A1	F300*****C*I***** F300(A,B,C,E)****C*I***** H300*****C*I*****
Transmitter type *700*1[1)]*******	Ex ib IIB+H_2 T5…T1 Gb Ex tb IIIC T[3)]°C Db	Ex ib IIB T5…T1 Gb Ex tb IIIC T[3)]°C Db
Transmitter type *700*1[2)]*******	Ex ib IIC T5…T1 Gb Ex tb IIIC T[3)]°C Db	Ex ib IIB T5…T1 Gb Ex tb IIIC T[3)]°C Db
Transmitter type *700*1[1)]4******	Ex ib IIB+H_2 T4…T1 Gb	Ex ib IIB T4…T1 Gb
Transmitter type *700*1[2)]4******	Ex ib IIC T4…T1 Gb	Ex ib IIB T4…T1 Gb

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) Max. surface temperature T for dust see temperature graphs and manufacturer's instructions.

3 By mounting the sensor type *********F******* directly to the transmitter 5700********** the use of the unit will be modified according to the following:

Sensor type	F025*****F*I***** F050*****F*I***** F100(S,H)****F*I***** F100(P,J)****F*I***** F100(P,J)****F*I***** CIC A2 F200*****F*I***** F300*****F*I***** CIC A4 F300*****F*7***** H025*****F*I***** H050*****F*I***** H100*****F*I***** H200*****F*I***** H300*****F*I***** CIC A4 H300*****F*7***** R025*****F*I***** R050*****F*I***** R100*****F*I***** R200*****F*I***** CNG050*****F*I***** F025(A,B,C,E)****F*I***** F050(A,B,C,E)****F*I***** F100(A,B,C,E)****F*I***** F025(A,B,C,E)****F*I***** CIC A1 F050(A,B,C,E)****F*I***** CIC A1 F100(A,B,C,E)****F*I***** CIC A1	F300*****F*I***** F300(A,B,C,E)****F*I***** H300*****F*I*****
Transmitter type 5700*1[1)]*******	Ex ib IIB+H_2 T6...T1 Gb Ex tb [ib] IIIC T [3)]°C Db	Ex ib IIB T6...T1 Gb Ex tb IIIC T [3)]°C Db
Transmitter type 5700*1[2)]*******	Ex ib IIC T6...T1 Gb Ex tb [ib] IIIC T [3)]°C Db	Ex ib IIB T6...T1 Gb Ex tb IIIC T [3)]°C Gb
Transmitter type 5700*1[1)] 4******	Ex ib IIB+H_2 T4...T1 Gb	Ex ib IIB T4...T1 Gb
Transmitter type 5700*1[2)] 4******	Ex ib IIC T4...T1 Gb	Ex ib IIB T4...T1 Gb

1) At this place the numeral 2 will be inserted.

2) At this place the numeral 3 or 5 will be inserted.

3) Max. surface temperature T for dust see temperature graphs and manufacturer's instructions.

4 EPL Ga (Zone 0) is permitted in the measuring pipe. The sensors may be employed only for those media, for which the wetted parts are known to be suitable.

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 06.0005X

Issue No: 6

Status: **Current**

Date of Issue: **2018-12-13**

Certificate history:
Issue No. 6 (2018-12-13)
Issue No. 5 (2017-02-06)
Issue No. 4 (2015-11-06)
Issue No. 3 (2013-08-13)
Issue No. 2 (2009-12-11)
Issue No. 1 (2007-08-01)
Issue No. 0 (2006-07-04)

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

Equipment: **Sensor type F*** **********, H*** **********, R*** **********, CNG050**********

Optional accessory:

Type of Protection: **Equipment protection by intrinsic safety "i"**

Marking:

Ex ib IIB/IIC T6 / T5 / T4 ... T1 Ga/Gb
Ex ib IIIC T***°C Db
IP66/IP67

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

Position: Head of Certification Body

Signature:
(for printed version)

Date: 13.12.18

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 EXAM GmbH

IECEx Certificate of Conformity

Certificate No:	IECEx BVS 06.0005X	Issue No: 6
Date of Issue:	**2018-12-13**	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	**Emerson Process Management Flow B.V.** 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	**Tecnologias De Flujo, S.A. de C.V.** Ave. Miguel de Cervantes 111 Chihuahua Chihuahua 31136 Mexico	**Emerson SRL** Emerson Street No 4 400641 Cluj-Napoca Romania

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2017 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26 : 2014-10 Edition:3.0	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga

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

TEST & ASSESSMENT REPORTS:

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

Test Report:

DE/BVS/ExTR06.0037/06

Quality Assessment Report:

NO/PRE/QAR15.0018/01 NO/PRE/QAR15.0031/01 NO/PRE/QAR16.0019/01
NO/PRE/QAR16.0031/00

IECEx Certificate of Conformity

Certificate No: IECEx BVS 06.0005X Issue No: 6

Date of Issue: **2018-12-13**

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Subject and type:
See Annex

Description:
See Annex

Parameters:
See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

See Annex

IECEx Certificate of Conformity

Certificate No: IECEx BVS 06.0005X Issue No: 6

Date of Issue: **2018-12-13** Page 4 of 4

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

New variant type F/H/R300********** C.I.C. A5 has been added.
Addition of 820 transmitter
Removed F300 high temperature sensor and approval option 7 (IIC for F300)

Annex:

BVS_06_0005X_MicroMotion_Annex_issue6.pdf

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 06.0005X issue No.: 6**
Annex

General product information:
Subject and Type

Sensor type F*** *******(I)*****
H*** *******(I)*****
R*** *******(I)*****
CNG050*******(I)****

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

F * * * * * * * * * * * * * * * *
H * * * * * * * * * * * * * * * *
R * * * * * * * * * * * * * * * *
CNG 0 5 0 * * * * * * * * * * * *

Marking without influence to the type of protection

Approval
I = IECEx Zone 1, Zone 21, Zone 0/1

Letter for conduit connections

Letter for electronic interface
2 = integral aluminum enhanced core processor
3 = integral stainless enhanced core processor
4 = extended aluminum enhanced core processor
5 = extended stainless enhanced core processor
6 = integral aluminum enhanced core processor for direct host
7 = integral stainless enhanced core processor for direct host
8 = extended aluminum enhanced core processor for direct host
9 = extended stainless enhanced core processor, for direct host
Q = integral aluminum core processor
A = integral stainless core processor
V = extended aluminum core processor
B = extended stainless core processor
C = integral 1700/2700 Transmitter
F = integral 5700 Transmitter
W = integral aluminum core processor for direct host
D = integral stainless core processor for direct host
Y = extended aluminum core processor for direct host
E = extended stainless core processor, for direct host
R = integral aluminum 9-wire junction box
H = extended aluminum 9-wire junction box
S = integral stainless 9-wire junction box
T = extended stainless 9-wire junction box
J = integral 2200S Transmitter
U = extended 2200S Transmitter

Marking without influence to the type of protection

A = High Temp. Stainless Steel Tube 350 °C
B = High Temp. HY Tube 350 °C
C = High Temp. Stainless Steel Tube 427 °C
E = High Temp. HY Tube 427 °C
P/J = High Pressure (for F100 only)
Other marking without influence to the type of protection

3 numerals for type of sensor

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 06.0005X issue No.: 6**
Annex

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.

- When used with an integral mounted junction box (IECEx BVS 09.0022U), this variation gets the denomination F/H/R/CNG********(S or T)******* for a SS enclosure and F/H/R/CNG******** (R or H)******* for an aluminum enclosure.

- When used with an integral mounted signal processing device type 700 (IECEx BVS 04.0002U), this variation gets the denomination type F/H/R/CNG********(A, B, D, or E)******* for a SS enclosure and F/H/R/CNG********(Q, V, W or Y)******* for an aluminum enclosure.

- When used with an integral mounted enhanced signal processing device type 800 (IECEx BVS 05.0010 U), this variation gets the denomination type F/H/R/CNG********(3, 5, 7 or 9)******* for a SS enclosure and F/H/R/CNG********(2, 4, 6 or 8)******* for an aluminum enclosure.

- The high temperature version F***(A, B, C or E)********** can be executed with a junction box or transmitter or core processor / enhanced core processor; this variation has therefore always the denomination F***(A, B, C or E)**********.


or


- When used with an integral transmitter type 2200S********* (IECEx BVS 08.0038X), the variation gets the denomination F*** *****(J or U)*******. By mounting the sensor directly to the 2200S transmitter the use of the unit will be modified.

- When used with an integral transmitter type (1 or 2)700********** (IECEx BVS 04.0006X), the variation gets the denomination F*** *****C*******. By mounting the sensor directly to the (1 or 2) 700 transmitter the use of the unit will be modified.

- When used with an integral transmitter type 5700********** (IECEx BVS 14.0090X), the variation gets the denomination F*** *****F*******. By mounting the sensor directly to the 5700 transmitter the use of the unit will be modified.

Modifications to the design which have impact on the electrical parameters are indicated by a Construction Identification Code (CIC). This code consists out of two digits, starting with an A and followed by a sequence number, for example A4. The CIC can be found on the approval label.

Parameters

1 Type F********(R,H,S,T)******* except F***(A,B,C,E)****(R,S)*******
H********(R,H,S,T)*******
R********(R,H,S,T)*******
CNG050*****(R,H,S,T)****** with Junction Box

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

Voltage	U_i	DC	11.4	V
Current (Instantaneous)	I_i		2.45	A
Current (Steady State)	I_i		0.272	A
Power	P_i		2.54	W
Effective internal capacitance	C_i		Negligible	
Effective internal inductance	L_i		Per following table	

Sensor type			Inductance [mH]	Coil Resistance [Ω]	Series Resistor [Ω]	Minimum Ambient/Fluid Temp [°C]
F025*****(R,H,S,T)*I***** H025*****(R,H,S,T)*I***** R025*****(R,H,S,T)*I*****		IIC	7.5	68.57	568.63	-100 °C
F050*****(R,H,S,T)*I***** H050*****(R,H,S,T)*I***** R050*****(R,H,S,T)*I***** CNG050*****(R,H,S,T)*I****		IIC	7.5	68.57	568.63	-100 °C
F100(S,H)****(R,H,S,T)*I***** H100*****(R,H,S,T)*I*****		IIC	7.5	77.27	71.1	-83 °C

R100*****(R,H,S,T)*I*****					
F100(P,J)****(R,H,S,T)*I***** F100(P,J)****(R,H,S,T)*I***** CIC A2	IIC IIC	7.5 26	74.2 205.4	74.1 74.1	-89 °C -87 °C
F200*****(R,H,S,T)*I***** H200*****(R,H,S,T)*I***** R200*****(R,H,S,T)*I*****	IIC	9.4	25.4	148.14	-100 °C
F300*****(R,H,S,T)*I***** H300*****(R,H,S,T)*I*****	IIB	11.75	83.5	7.9	-40 °C
F300*****(R,H,S,T)*I***** CIC A4 H300*****(R,H,S,T)*I***** CIC A4	IIC	11.75	57.8	129	-100 °C
F300*****(R,H,S,T)*I***** CIC A5 H300*****(R,H,S,T)*I***** CIC A5 R300*****(R,H,S,T)*I***** CIC A5	(IIC)	11.75	57.8	148	-100 °C

1.2 Pick-off circuit 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	C_i		Negligible	
Effective internal inductance	L_i		Per following table	

Sensor type		Inductance [mH]	Coil Resistance [Ω]	Series Resistor [Ω]	Minimum Ambient/Fluid Temp [°C]
F025*****(R,H,S,T)*I***** H025*****(R,H,S,T)*I***** R025*****(R,H,S,T)*I*****	IIC	7.5	68.57	0-568.63	-100 °C
F050*****(R,H,S,T) I***** H050*****(R,H,S,T)*I***** R050*****(R,H,S,T)*I***** CNG050*****(R,H,S,T)*I****	IIC	7.5	68.57	0-568.63	-100 °C
F100(S,H)****(R,H,S,T)*I***** H100*****(R,H,S,T)*I***** R100*****(R,H,S,T)*I*****	IIC	7.5	77.27	0-568.83	-83 °C
F100(P,J)****(R,H,S,T)*I***** F100(P,J)****(R,H,S,T)*I***** CIC A2	IIC IIC	0.55 0.55	17.2 17.36	0-568.76 0-568.76	-89 °C -87 °C
F200*****(R,H,S,T)*I***** H200*****(R,H,S,T)*I***** R200*****(R,H,S,T)*I*****	IIC	12.4	88.6	0-568.63	-100 °C
F300*****(R,H,S,T)*I***** H300*****(R,H,S,T)*I*****	IIB	12.4	128.4	0-569.3	-40 °C
F300*****(R,H,S,T)*I***** CIC A4 H300*****(R,H,S,T)*I***** CIC A4	IIC	12.4	88.6	0-568.63	-100 °C
F300*****(R,H,S,T)*I***** CIC A5 H300*****(R,H,S,T)*I***** CIC A5 R300*****(R,H,S,T)*I***** CIC A5	(IIC)	12.4	88.6	0-568.63	-100 °C

1.3 Temperature circuit (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	

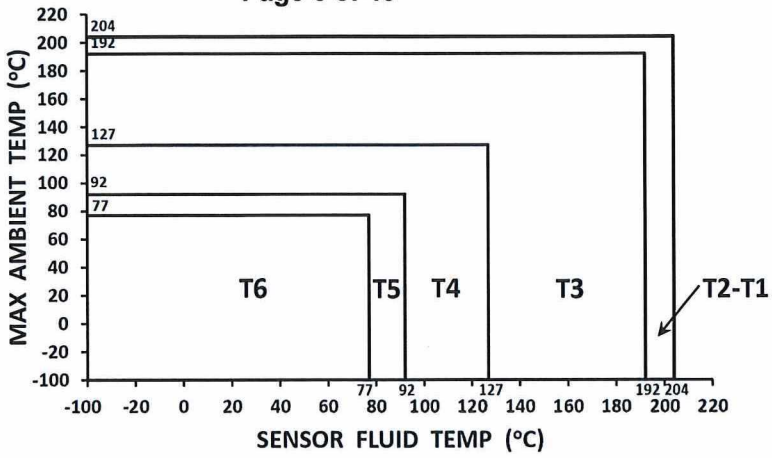
Identification resistor circuit (terminals 3 & 4 or wires orange and yellow)

Sensor type	Inductance [mH]	Coil resistance [Ω]	Serial resistor [Ω]	Minimum Ambient/Fluid Temperature [°C]
F100(P,J)****(R,H,S,T)*I*****	N/A	N/A	46.4 to 48.7	-89 °C
F100(P,J)****(R,H,S,T)*I***** CIC A2	N/A	N/A	46.4 to 48.7	-87 °C
F300*****(R,H,S,T)*I*****	N/A	N/A	42.2 to 44.3	-40 °C
F300*****(R,H,S,T)*I***** CIC A4	N/A	N/A	42.2 to 44.3	-100 °C
H300*****(R,H,S,T)*I*****	N/A	N/A	42.2 to 44.3	-40 °C
H300*****(R,H,S,T)*I***** CIC A4	N/A	N/A	42.2 to 44.3	-100 °C
F300*****(R,H,S,T)*I***** CIC A5 H300*****(R,H,S,T)*I***** CIC A5 R300*****(R,H,S,T)*I***** CIC A5	N/A	N/A	40.2 to 42.3	-100 °C

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 graphs:

1.4.1

Sensor type 		
F025*****(R,H,S,T)*I***** H025*****(R,H,S,T)*I***** R025*****(R,H,S,T)*I*****	IIC	Connected to MVD transmtters, e.g. 1000/2000/3000/ 4000/5000MVD series and Model 820
F050*****(R,H,S,T)*I***** H050*****(R,H,S,T)*I***** R050*****(R,H,S,T)*I***** CNG050*****(R,H,S,T)*I****	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

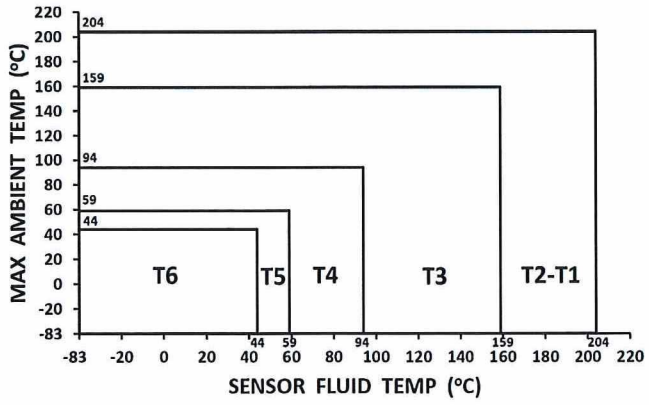
Note 2: The maximum surface temperature T for dust is as follows: T6: T80 °C, T5: T95 °C, T4: T130 °C, T3: T195 °C, T2 and T1: T207 °C.

Note 3: The minimum ambient temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

1.4.2

Sensor type 		
F100(S,H)****(R,H,S,T)*I***** H100*****(R,H,S,T)*I***** R100*****(R,H,S,T)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/4000/5000MVD series and Model 820



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

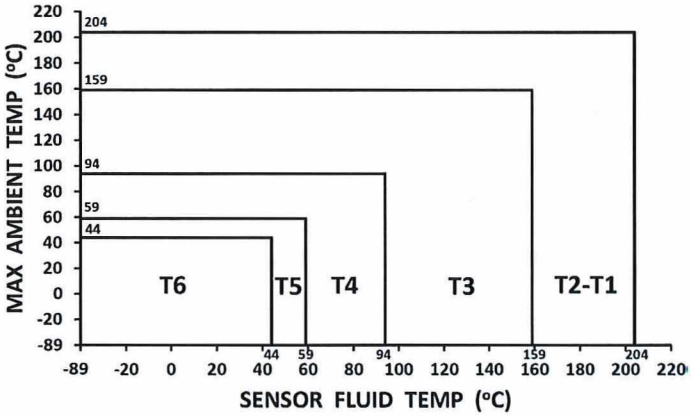
Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 240 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

1.4.3

Sensor type 		
F100(P,J)****(R,H,S,T)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series and Model 820



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

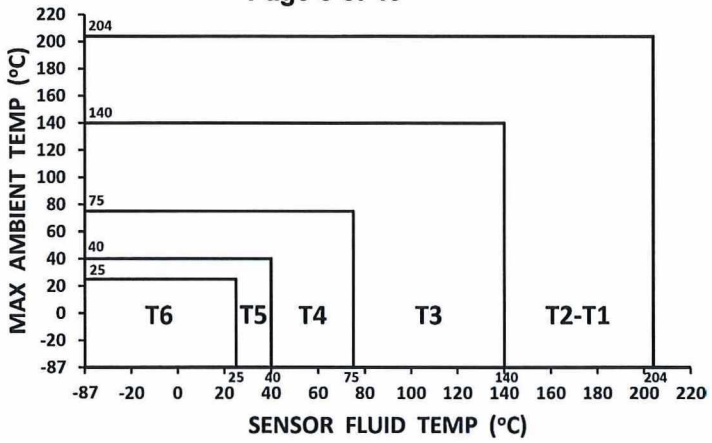
Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 240 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

1.4.4

Sensor type 		
F100(P,J)****(R,H,S,T)*I***** CIC A2	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series and Model 820



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

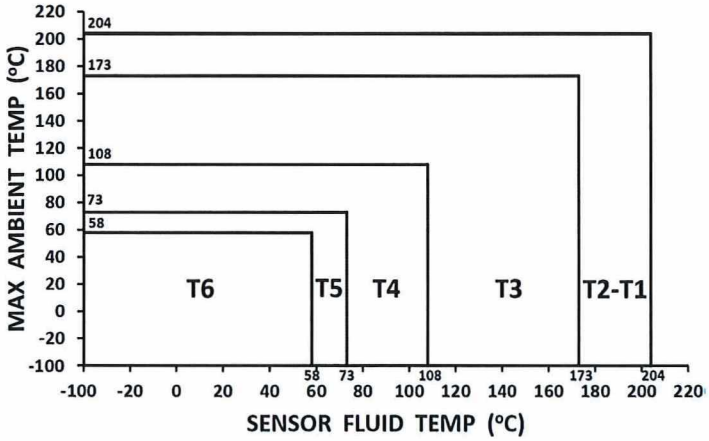
Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 259 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

1.4.5

Sensor type 		
F200*****(R,H,S,T)*I***** H200*****(R,H,S,T)*I***** R200*****(R,H,S,T)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series and Model 820



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

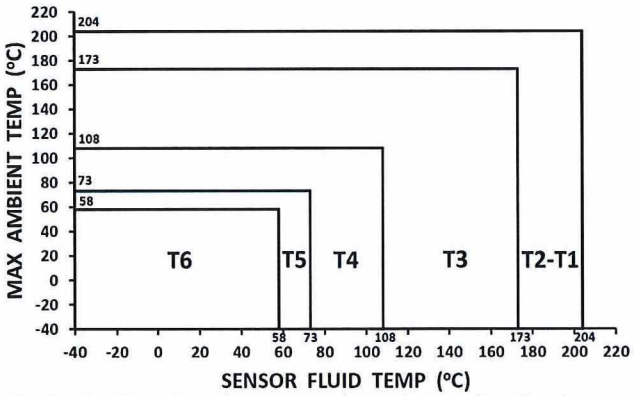
Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: to T1:T 226 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

1.4.6

Sensor type		
F300*****(R,H,S,T)*I***** H300*****(R,H,S,T)*I*****	IIB	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series and Model 820



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 226 °C.

Ambient temperature range T_a see Graph

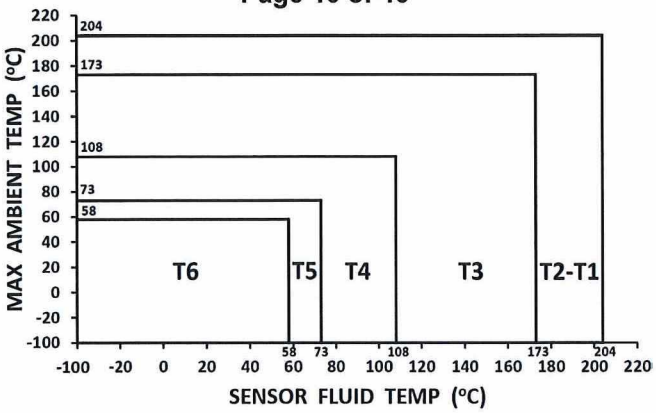
1.4.7

Sensor type		
F300*****(R,H,S,T)*I***** CIC A4 H300*****(R,H,S,T)*I***** CIC A4	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series and Model 820

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 06.0005X issue No.: 6**

Annex



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

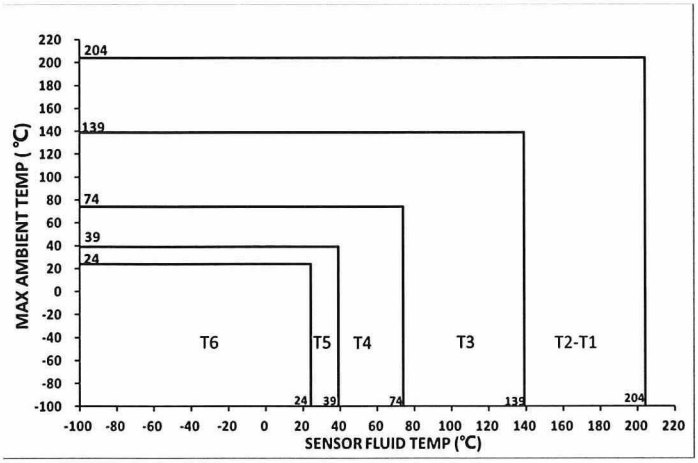
Note 2: The maximum surface temperature T for dust is as follows: T6: T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 226 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

1.4.8

Sensor type		
F300*****(R,H,S,T)*I***** CIC A5 H300*****(R,H,S,T)*I***** CIC A5 R300*****(R,H,S,T)*I***** CIC A5	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series and Model 820



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T6: T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 248 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range	T_a	see Graph

2 Type F***(A,B,C,E)****(R,S)******* with Junction Box.

2.1 Drive circuit (connections 1 - 2 or wires 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	C_i		Negligible	
Effective internal inductance	L_i		Per following table	

Sensor type  or 		Inductance [mH]	Coil Resistance [Ω]	Series Resistor [Ω]	Minimum Ambient/Fluid Temp [°C]
F025(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	55.3	-50
F025(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	38.5	-50
F050(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	55.3	-50
F050(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	38.5	-50
F100(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	55.3	-50
F100(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	38.3	-50

2.2 Pick-off circuit (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	C_i		Negligible	
Effective internal inductance	L_i		Per following table	

Sensor type  or 		Inductance [mH]	Coil Resistance [Ω]	Series Resistor [Ω]	Minimum Ambient/Fluid Temp [°C]
F025(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	0-569.2	-50
F025(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	0-569.2	-50
F050(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	0-569.2	-50
F050(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	0-569.2	-50
F100(A,B,C,E)****(R,S)*I*****	IIC	1.8	19.8	0-569.2	-50
F100(A,B,C,E)****(R,S)*I***** CIC A1	IIC	0.9	13.5	0-569.2	-50

2.3 Temperature circuit (terminals 3, 4 and 7 or wires orange, yellow and violet)

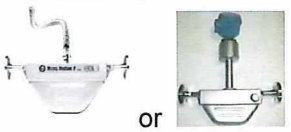
Voltage	U_i	DC	21.13	V
Current	I_i		26	mA
Power	P_i		112	mW
Effective internal capacitance	C_i		Negligible	
Effective internal inductance	L_i		Negligible	

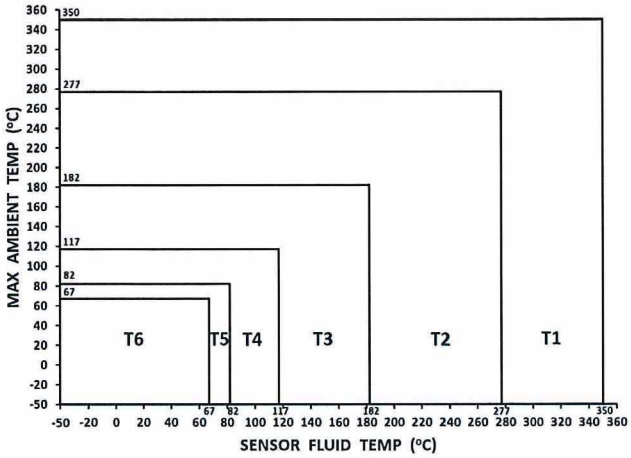
Identification resistor circuit (terminals 3 & 4 or wires orange and yellow)

Sensor type	Inductance [mH]	Coil resistance [Ω]	Serial resistor [Ω]	Minimum Ambient/ Fluid Temperature [°C]
F025(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50 °C
F025(A,B,C,E)****(R,S)*I***** C.I.C. A1	N/A	N/A	42.2 to 44.3	-50 °C
F050(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50 °C
F050(A,B,C,E)****(R,S)*I***** C.I.C. A1	N/A	N/A	42.2 to 44.3	-50 °C
F100(A,B,C,E)****(R,S)*I*****	N/A	N/A	42.2 to 44.3	-50 °C
F100(A,B,C,E)****(R,S)*I***** C.I.C. A1	N/A	N/A	42.2 to 44.3	-50 °C

2.4 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 graphs:

2.4.1

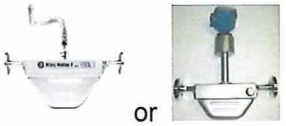
Sensor type		
F025(A,B)****(R,S)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series and Model 820
F025(A,B)****(R,S)*I***** CIC A1	IIC	
F050(A,B)****(R,S)*I*****	IIC	
F050(A,B)****(R,S)*I***** CIC A1	IIC	
F100(A,B)****(R,S)*I*****	IIC	
F100(A,B)****(R,S)*I***** CIC A1	IIC	

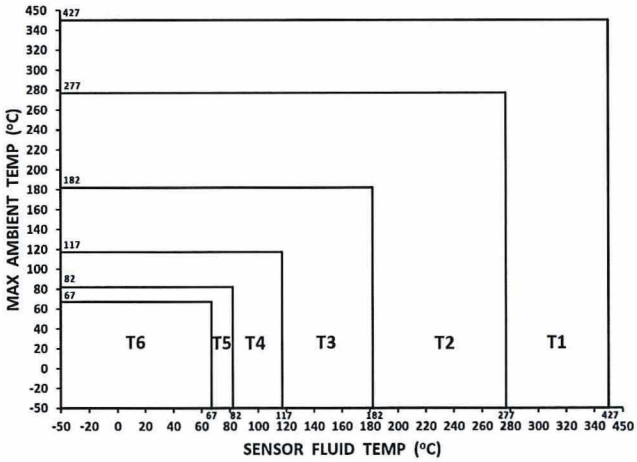


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.
Note 2: The maximum surface temperature for dust is as follows: T6:T 80°C, T5:T 95°C, T4:T 130°C, T3:T 195°C, T2:T 290°C, T1:T 363°C.
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40°C.

Ambient temperature range: T_a See graph

2.4.2

Sensor type		
F025(C,E)****(R,S)*I*****	IIC	Connected to MVD transmitters, e.g. 1000/2000/3000/ 4000/5000MVD series and Model 820
F025(C,E)****(R,S)*I***** CIC A1	IIC	
F050(C,E)****(R,S)*I*****	IIC	
F050(C,E)****(R,S)*I***** CIC A1	IIC	
F100(C,E)****(R,S)*I*****	IIC	
F100(C,E)****(R,S)*I***** CIC A1	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.
Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2:T 290 °C, T1:T 440 °C.
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range: T_a See graph

3. Type F*** *****(2-9, A, B, D, E, Q, V, W or Y)*******, except type
F***(A, B, C, E)****(2, 3, 6, 7, A, D, Q or W)*******
H*** *****(2-9, A, B, D, E, Q, V, W or Y)*******,
R*** *****(2-9, A, B, D, E, Q, V, W or Y)*******,
CNG050 *****(2-9, A, B, D, E, Q, V, W or Y)******with Integral Core-Processor

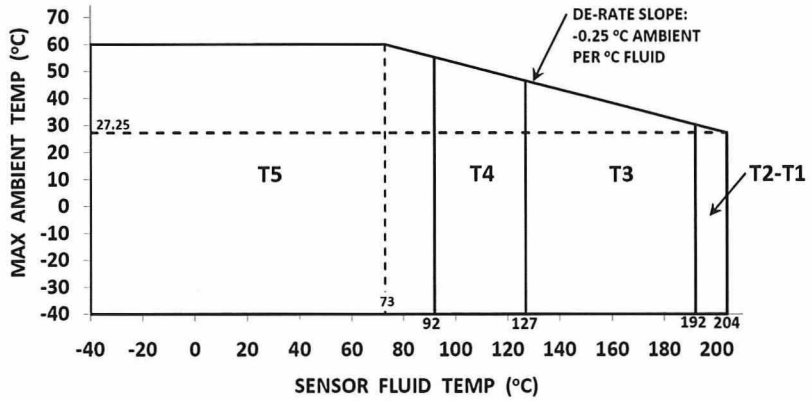
3.1 Input circuits (terminals 1-4)

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

3.2 Temperature class / maximum 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:

3.2.1

Sensor type		
F025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	(IIC)	With integral core processor
F050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CNG050 *****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I****	(IIC)	



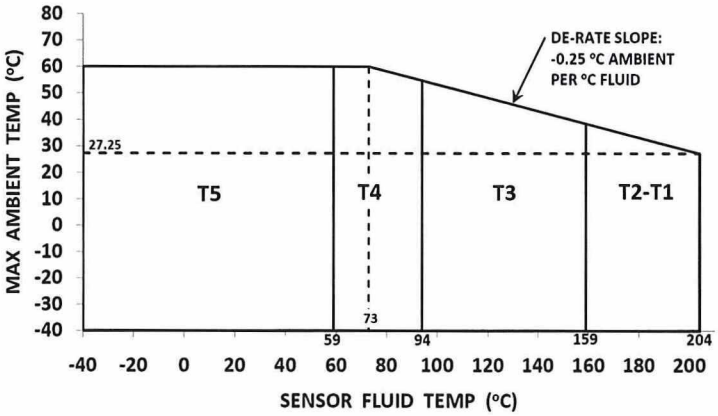
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 207 °C.

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

3.2.2

Sensor type		
F100(S,H)****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** F100(P,J)****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	IIC	With integral core processor



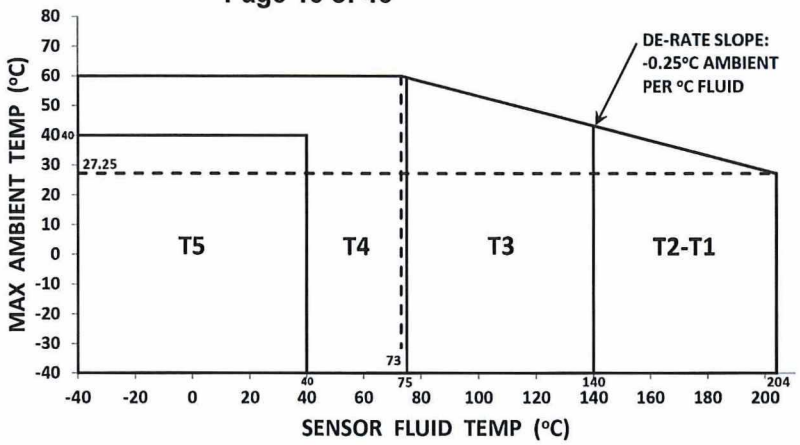
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 240 °C.

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

3.2.3

Sensor type		
F100(P,J)****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A2	IIC	With integral core processor



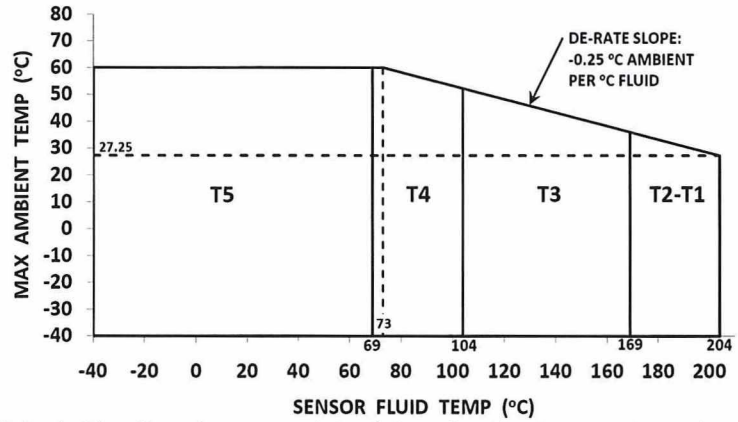
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 259 °C.

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

3.2.4

Sensor type		
F200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** R200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	IIC	With integral core processor



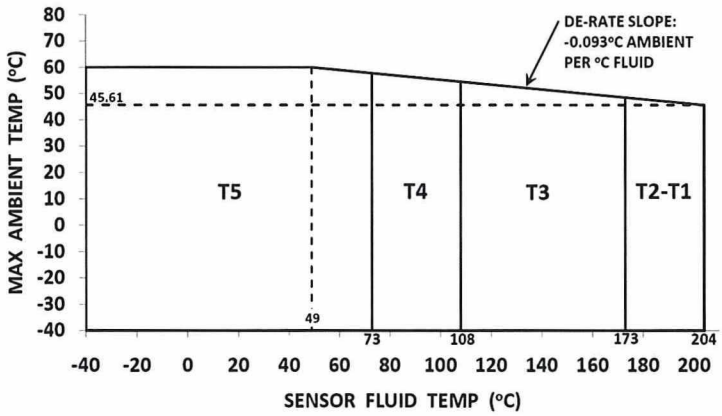
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 230 °C.

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

3.2.5

Sensor type		
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	IIB	With integral core processor
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A4 H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A4	IIC	



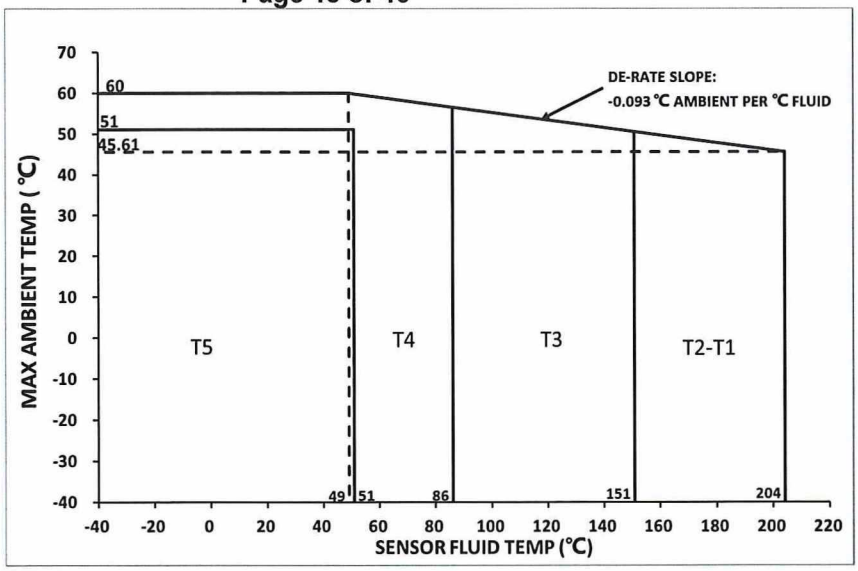
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 226 °C.

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

3.2.6

Sensor type		
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A5 H300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A5 R300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I***** CIC A5	(IIC)	With integral core processor



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.
Note 2: The maximum surface temperature for dust is as follows: T5:T 95°C, T4:T 130°C, T3:T 195°C, T2 to T1: T 248°C.

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

4 Type F***(A,B,C,E)****(2,3,6,7,A,D,Q,W)******* with integral core processor.


or

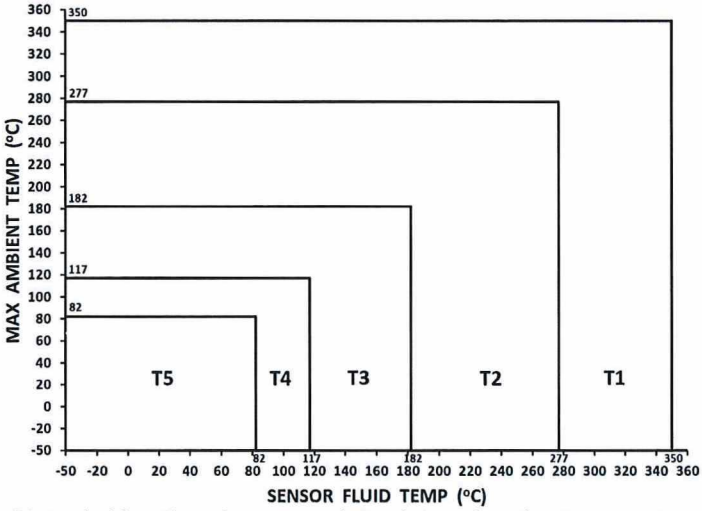

4.1 Input circuits (terminals 1-4)

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

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 graphs:

4.2.1

Sensor type	 or 		
F025(A,B)****(2,3,6,7,A,D,Q,W)*I*****		IIC	With integral core processor
F025(A,B)****(2,3,6,7,A,D,Q,W)*I***** CIC A1		IIC	
F050(A,B)****(2,3,6,7,A,D,Q,W)*I*****		IIC	
F050(A,B)****(2,3,6,7,A,D,Q,W)*I***** CIC A1		IIC	
F100(A,B)****(2,3,6,7,A,D,Q,W)*I*****		IIC	
F100(A,B)****(2,3,6,7,A,D,Q,W)*I***** CIC A1		IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 363 °C.

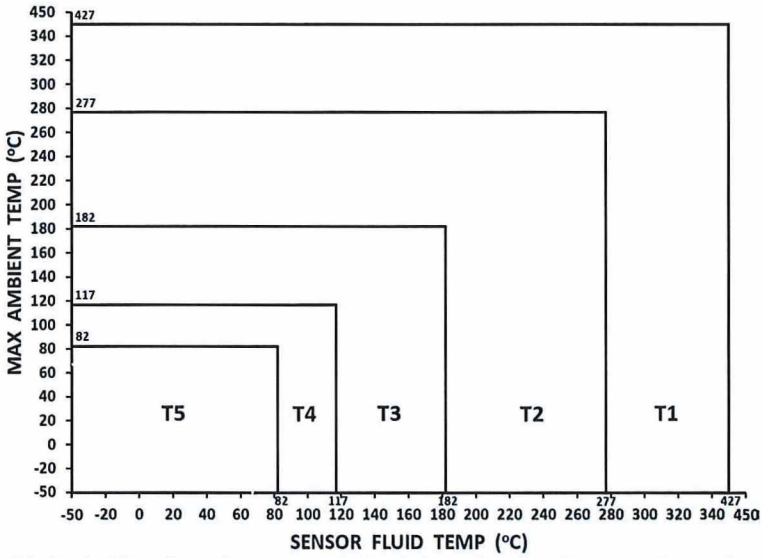
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see Graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 60 °C even at a maximum ambient temperature of 60 °C.

4.2.2

Sensor type	 or 		
F025(C,E)****(2,3,6,7,A,D,Q,W)*I*****		IIC	With integral core processor
F025(C,E)****(2,3,6,7,A,D,Q,W)*I***** CIC A1		IIC	
F050(C,E)****(2,3,6,7,A,D,Q,W)*I*****		IIC	
F050(C,E)****(2,3,6,7,A,D,Q,W)*I***** CIC A1		IIC	
F100(C,E)****(2,3,6,7,A,D,Q,W)*I*****		IIC	
F100(C,E)****(2,3,6,7,A,D,Q,W)*I***** CIC A1		IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 440 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range	T_a	see Graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 60 °C even at a maximum ambient temperature of 60 °C.

5 Type F********(J,U)*******, except type F***(A,B,C,E)****J*******
H********(J,U)*******,
R********(J,U)*******,
CNG050*****(J,U)****** with Integral 2200S transmitter

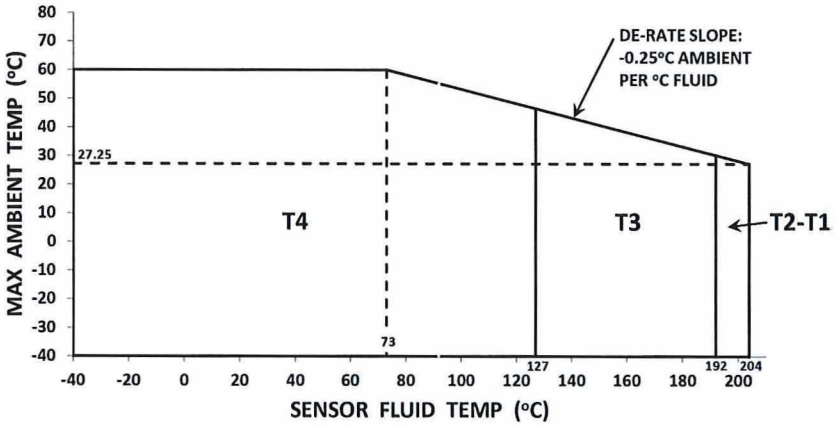
5.1 Input circuits (terminals 1-2)

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	µH

5.2 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:

5.2.1

Sensor type		
F025*****(J,U)*I***** H025*****(J,U)*I***** R025*****(J,U)*I*****	IIC	With integral 2200S
F050*****(J,U)*I***** H050*****(J,U)*I***** R050*****(J,U)*I***** CNG050*****(J,U)*I****	IIC	

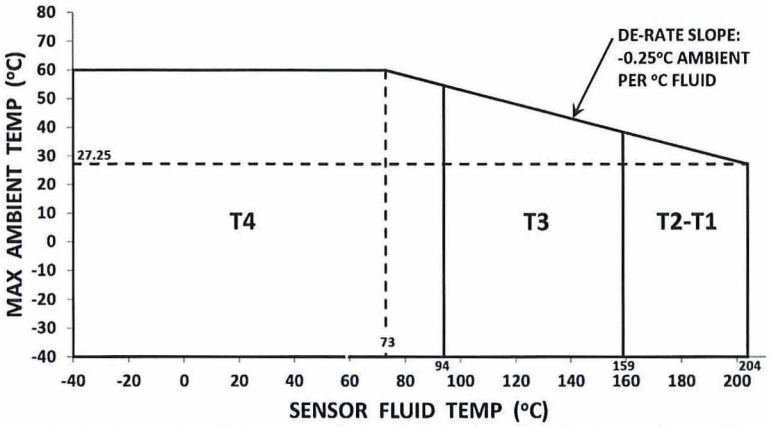


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

5.2.2

Sensor type		
F100(S,H)****(J,U)*I***** F100(P,J)****(J,U)*I***** H100*****(J,U)*I***** R100*****(J,U)*I*****	IIC	With integral 2200S

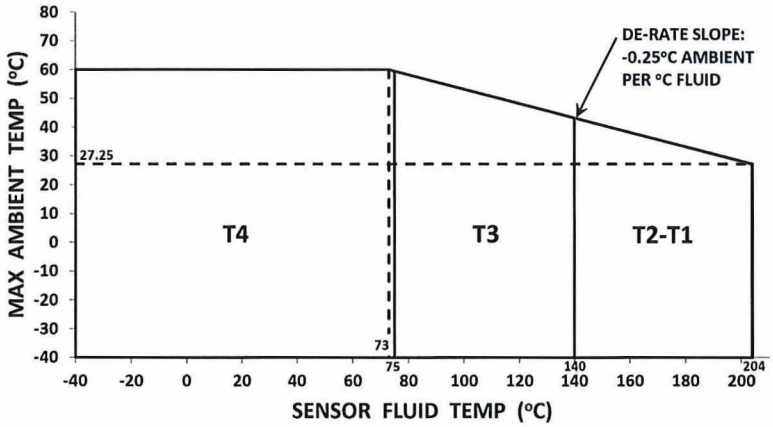


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

5.2.3

Sensor type		
F100(P,J)****(J,U)*I***** CIC A2	IIC	With integral 2200S

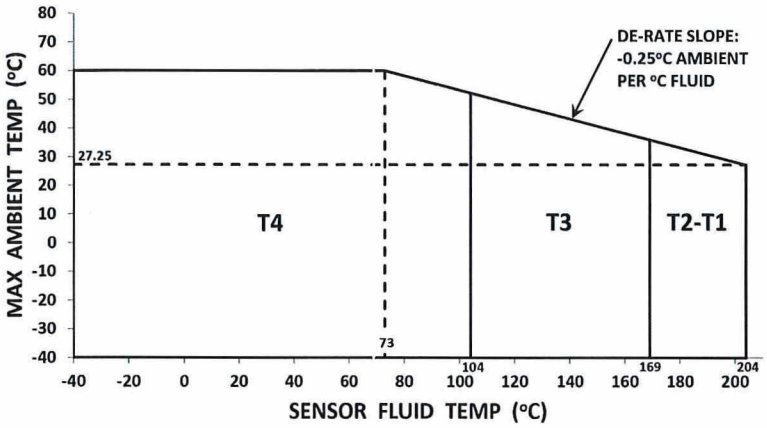


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

5.2.4

Sensor type		
F200*****(J,U)*I***** H200*****(J,U)*I***** R200*****(J,U)*I*****	IIC	With integral 2200S



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

5.2.5

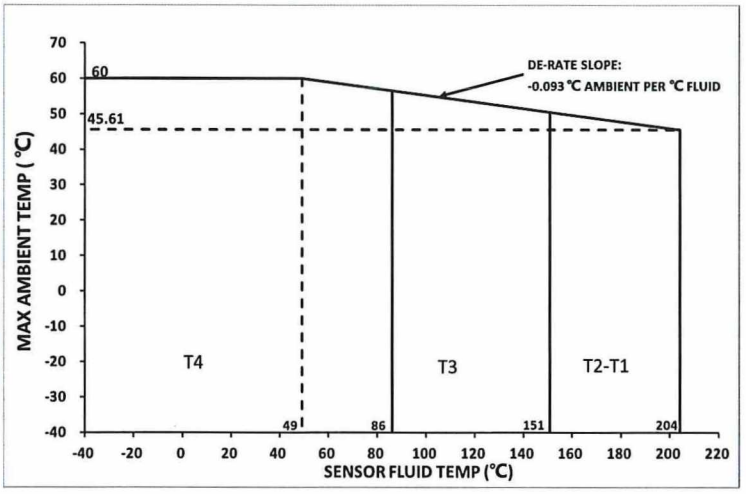
Sensor type		
F300*****(J,U)*I***** H300*****(J,U)*I*****	IIB	With integral 2200S
F300*****(J,U)*I***** CIC A4 H300*****(J,U)*I***** CIC A4	IIC	

Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

5.2.6

Sensor type		
F300*****(J,U)*I***** CIC A5 H300*****(J,U)*I***** CIC A5 R300*****(J,U)*I***** CIC A5	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

6 Type F***(A,B,C,E)****J******* with integral 2200S transmitter


or

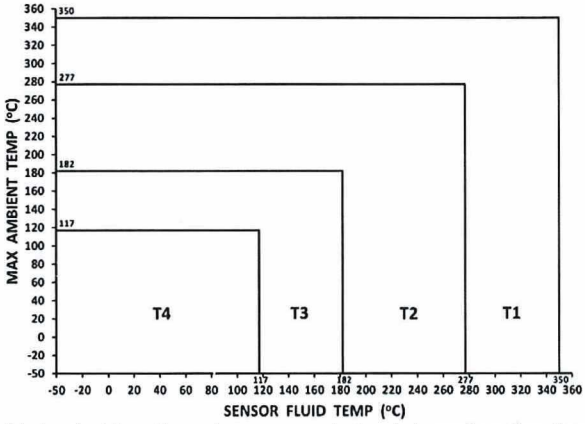

6.1 Input circuits (terminals 1-2)

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	µH

6.2 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:

6.2.1

Sensor type	 or 	
F025(A,B)****J*I*****	IIC	With integral 2200S
F025(A,B)****J*I***** CIC A1	IIC	
F050(A,B)****J*I*****	IIC	
F050(A,B)****J*I***** CIC A1	IIC	
F100(A,B)****J*I*****	IIC	
F100(A,B)****J*I***** CIC A1	IIC	



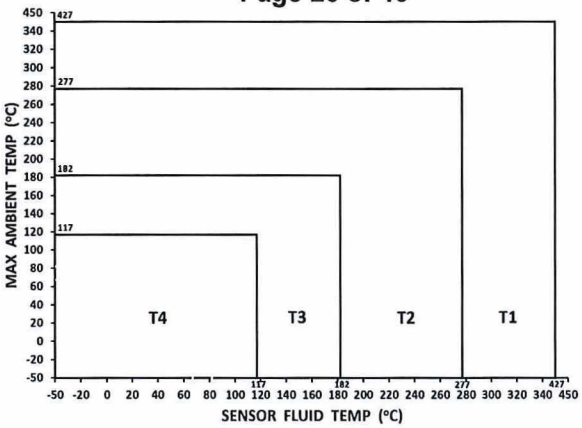
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range T_a see Graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 60 °C even at a maximum ambient temperature of 60 °C.

6.2.2

Sensor type	 or 	
F025(C,E)****J*I*****	IIC	With integral 2200S
F025(C,E)****J*I***** CIC A1	IIC	
F050(C,E)****J*I*****	IIC	
F050(C,E)****J*I***** CIC A1	IIC	
F100(C,E)****J*I*****	IIC	
F100(C,E)****J*I***** CIC A1	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range T_a see Graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 60 °C even at a maximum ambient temperature of 60 °C.

7 Type F********C*I*****, except Type F***(A,B,C,E)****C*I*****
H********C*I***** ,
R********C*I*****,
CNG050*****C*I**** with integral 1700-2700 Transmitter

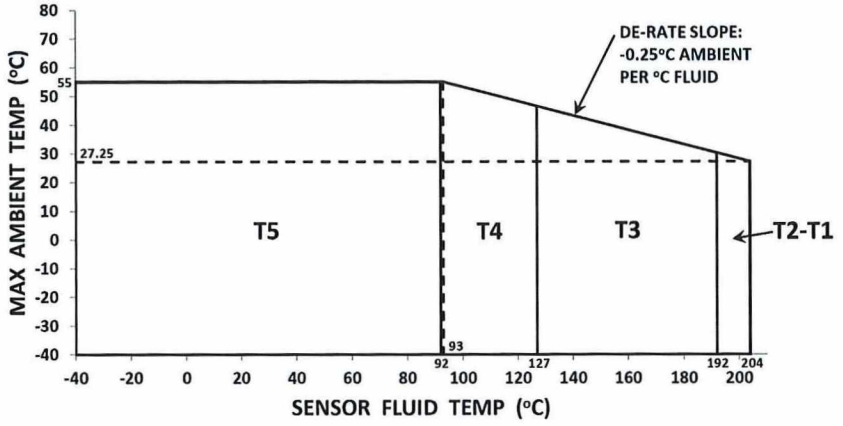
7.1 Electrical parameters see IECEx BVS 04.0006X for the transmitter type *700**********

7.2 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:

7.2.1

Sensor type			
F025*****C*I***** H025*****C*I***** R025*****C*I*****		IIC	With integral 1700 or 2700
F050*****C*I***** H050*****C*I***** R050*****C*I***** CNG050 *****C*I****		IIC	

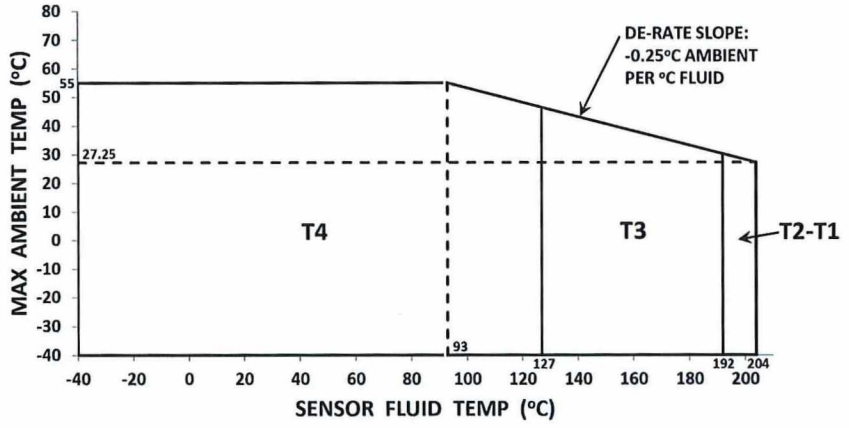


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 207 °C.

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

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

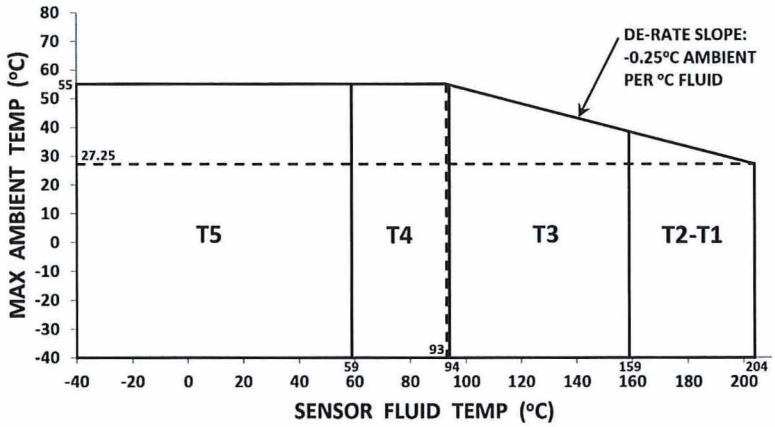


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

7.2.2

Sensor type		
F100(S,H)****C*I***** H100*****C*I***** R100*****C*I*****	IIC	With integral 1700 or 2700

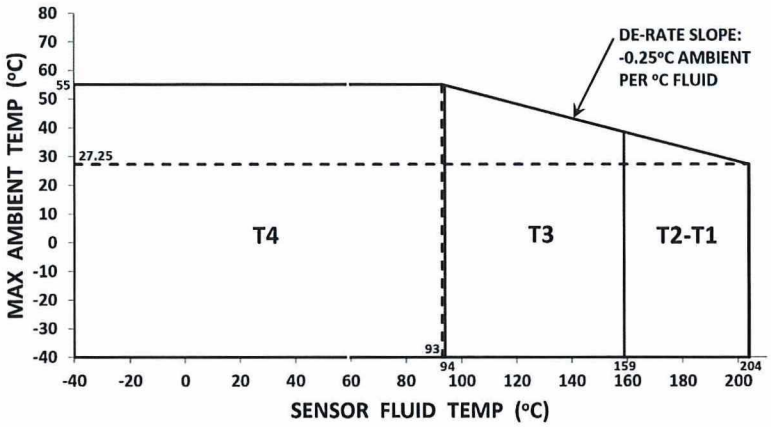


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 240 °C.

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

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

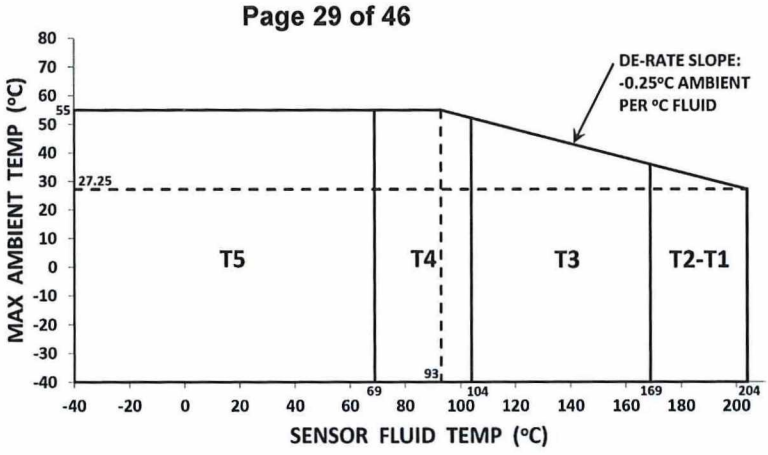


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

7.2.3

Sensor type		
F200*****C*I***** H200*****C*I***** R200*****C*I*****	IIC	With integral 1700 or 2700

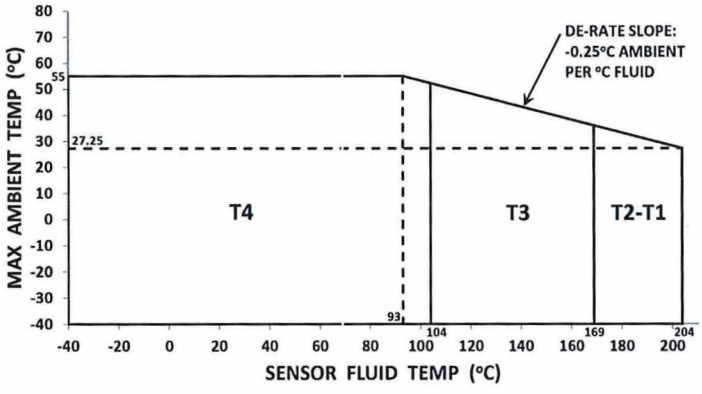


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 230 °C.

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

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

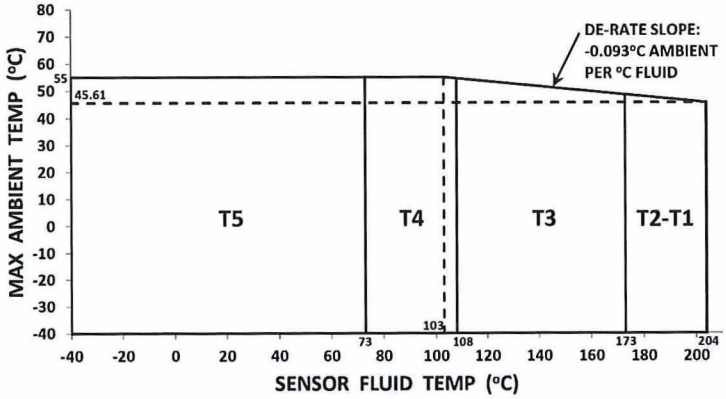


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

7.2.4

Sensor type			
F300*****C*I***** H300*****C*I*****		IIB	With integral 1700 or 2700
F300*****C*I***** CIC A4 H300*****C*I***** CIC A4		IIC	

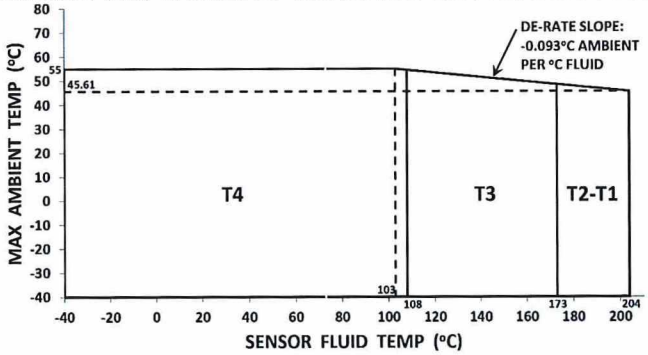


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 226 °C.

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

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

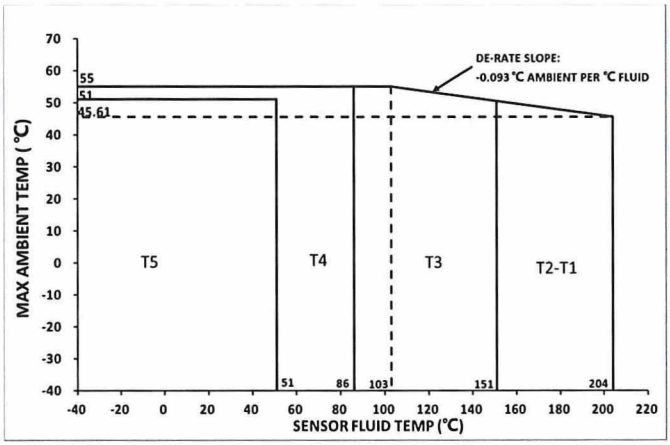


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

7.2.5

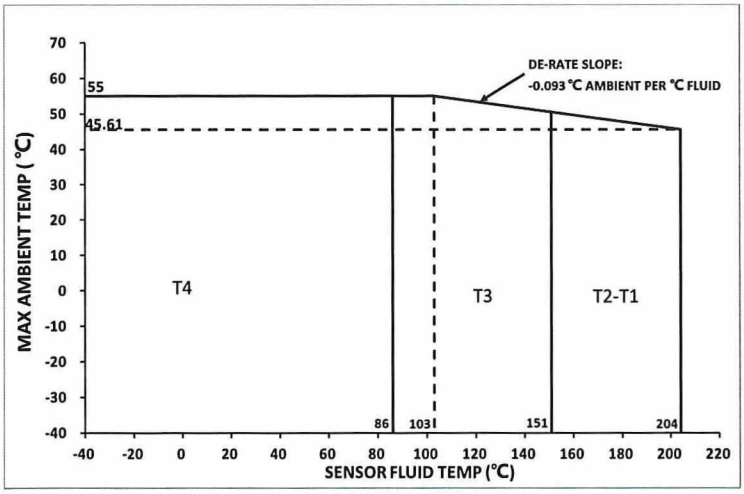
Sensor type		
F300*****C*|***** CIC A5 H300*****C*|***** CIC A5 R300*****C*|***** CIC A5	(IIC)	With integral 1700 or 2700



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.
Note 2: The maximum surface temperature for dust is as follows: T5:T95 °C, T4:T130 °C, T3:T195 °C, T2 to T1:T248 °C.

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

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



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 06.0005X issue No.: 6**
Annex

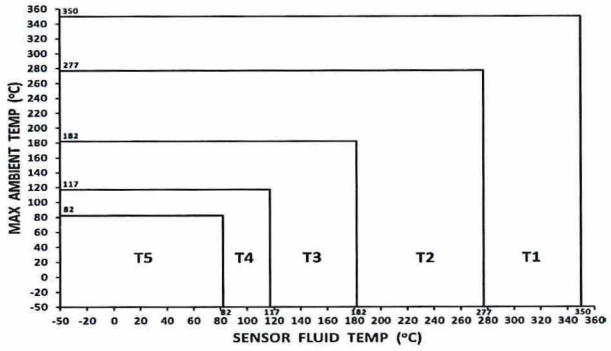
8 Type F***(A,B,C,E)****C*I***** with integral 1700-2700 Transmitter

8.1 Electrical parameters see IECEx BVS 04.0006X for the transmitter type *700**********

8.2 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:

8.2.1

Sensor type	 or 		
F025(A,B)****C*I*****		IIC	With Integral 1700 or 2700
F025(A,B)****C*I***** CIC A1		IIC	
F050(A,B)****C*I*****		IIC	
F050(A,B)****C*I***** CIC A1		IIC	
F100(A,B)****C*I*****		IIC	
F100(A,B)****C*I***** CIC A1		IIC	



Note1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

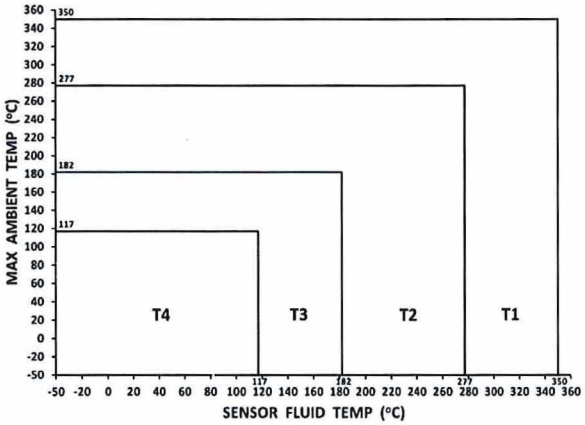
Note 2: The maximum surface temperature T for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 363 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 55 °C even at a maximum ambient temperature of 55 °C.

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



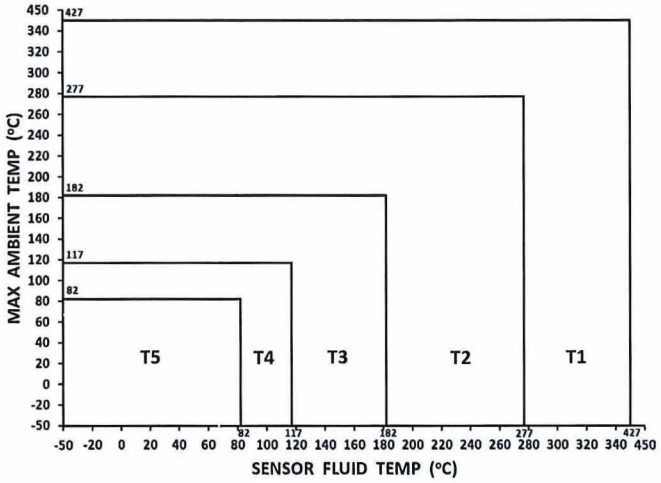
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range T_a see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 55 °C even at a maximum ambient temperature of 55 °C.

8.2.2

Sensor type	 or 		
F025(C,E)****C*I*****		(IIC)	With Integral 1700 or 2700
F025(C,E)****C*I***** CIC A1		(IIC)	
F050(C,E)****C*I*****		(IIC)	
F050(C,E)****C*I***** CIC A1		(IIC)	
F100(C,E)****C*I*****		(IIC)	
F100(C,E)****C*I***** CIC A1		(IIC)	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

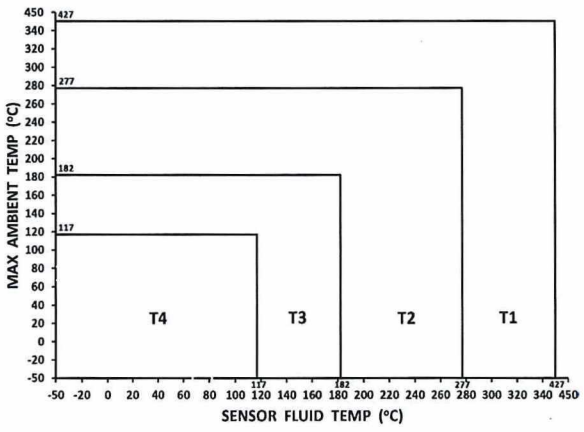
Note 2: The maximum surface temperature T for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 440 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 55 °C even at a maximum ambient temperature of 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 see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 55 °C even at a maximum ambient temperature of 55 °C.

9 Type F*** *****F*I*****, except Type F*** (A, B, C or E)****F*I*****
H*** *****F*I*****,
R*** *****F*I*****,
CNG050 *****F*I**** with integral 5700 Transmitter

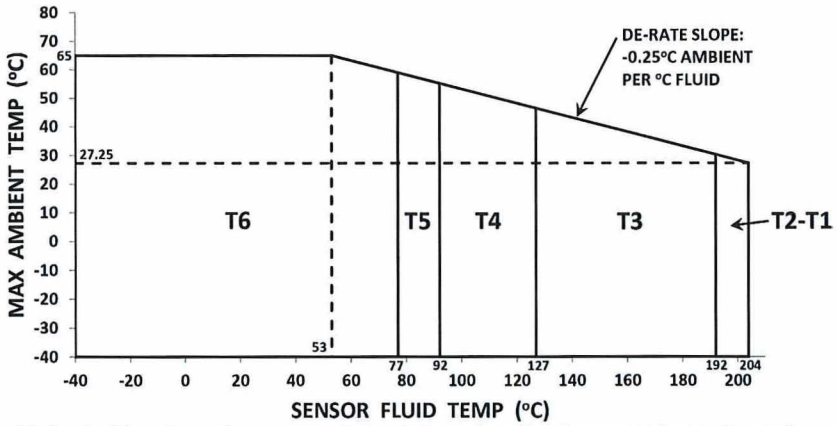
9.1 Electrical parameters see IECEx BVS 14.0090X for the transmitter type 5700**********

9.2 Temperature class / maximum 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:

9.2.1

Sensor type		
F025*****F*I***** H025*****F*I***** R025*****F*I*****	IIC	With integral 5700
F050*****F*I***** H050*****F*I***** R050*****F*I*****	IIC	

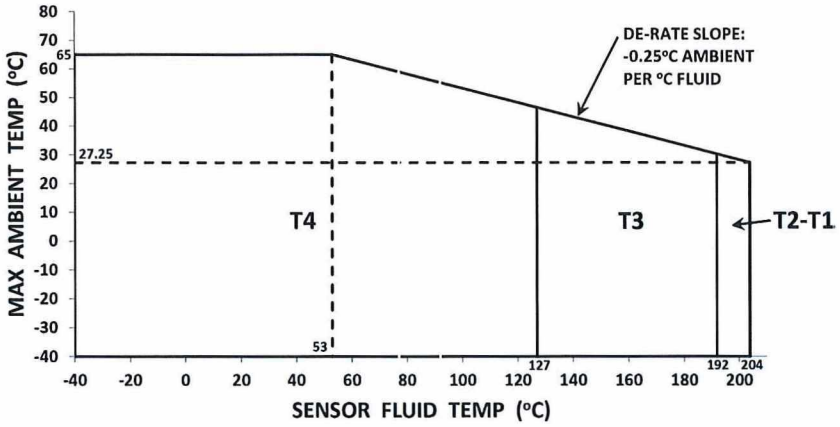


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6: T 80 °C, T5: T 95 °C, T4: T 130 °C, T3: T 195 °C, T2 to T1:T 207 °C.

Ambient temperature range T_a -40 °C to +65 °C

When used with 5700 Transmitter with Wireless HART Output Add on Options Code "PI" or "NI" (5700*1*A*IA*** *****(NI,PI):

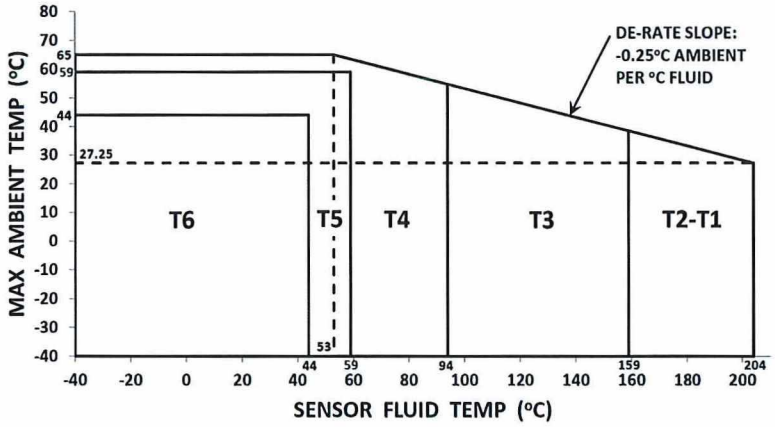


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range T_a -40 °C to +65 °C

9.2.2

Sensor type		
F100(S,H)****F*I***** F100(P,J)****F*I***** H100*****F*I***** R100*****F*I*****	IIC	With integral 5700

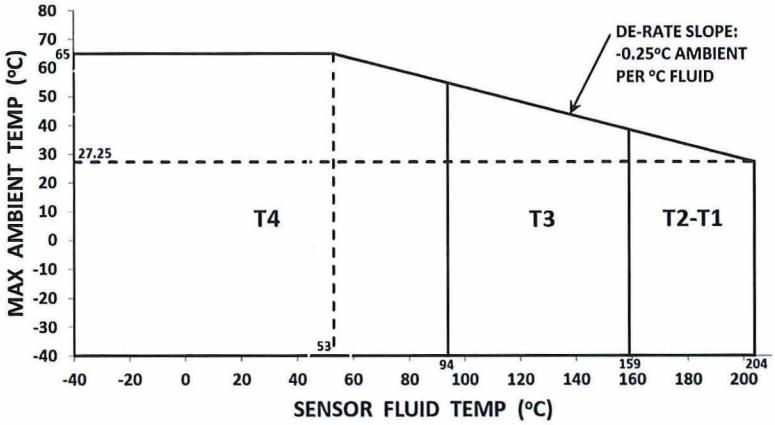


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 240 °C.

Ambient temperature range T_a -40 °C to +65 °C

When used with 5700 Transmitter with Wireless HART Output Add on Options Code "PI" or "NI" (5700*1***A***IA*** *****(NI,PI):

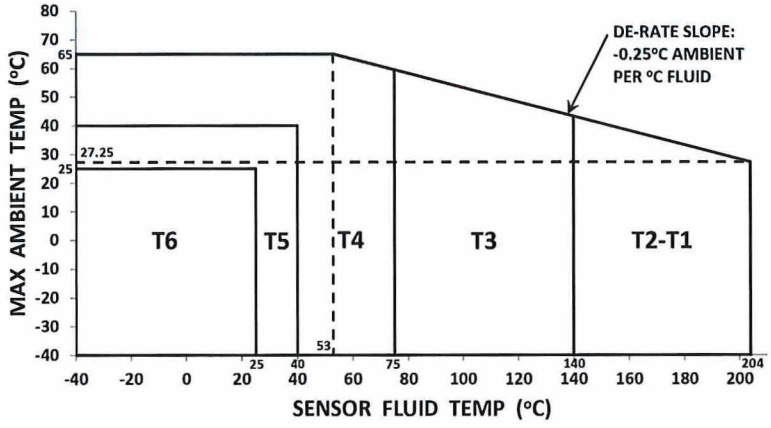


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range T_a -40 °C to +56 °C

9.2.3

Sensor type			
F100(P,J)****F*I***** CIC A2	IIC	With integral 5700	

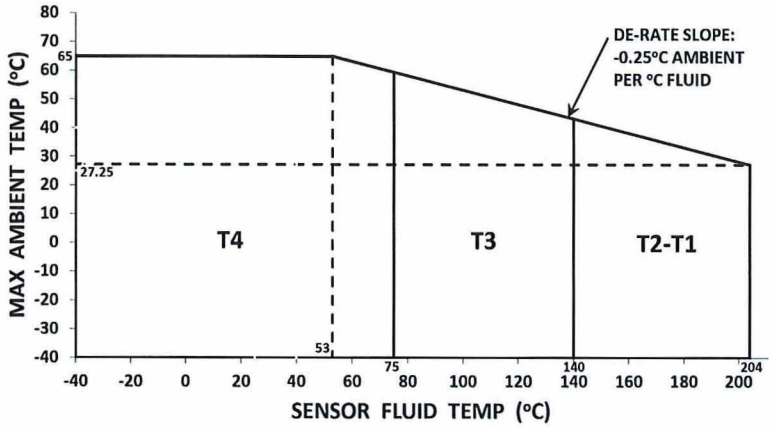


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 259 °C.

Ambient temperature range T_a -40 °C to +65 °C

When used with 5700 Transmitter with Wireless HART Output Add on Options Code "PI" or "NI" (5700*1***A***IA*** *****(NI,PI):

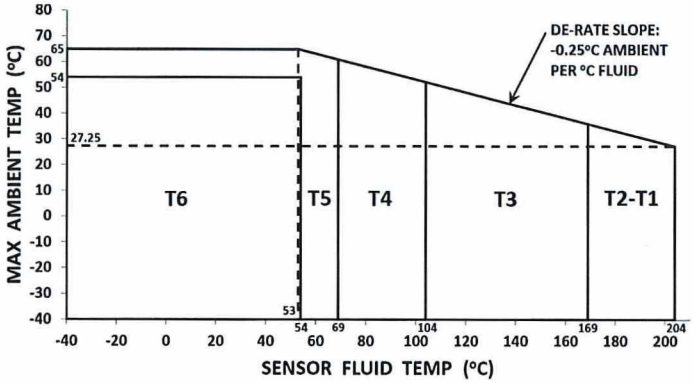


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range T_a -40 °C to +65 °C

9.2.4

Sensor type		
		
F200*****F*I***** H200*****F*I***** R200*****F*I*****	IIC	With integral 5700

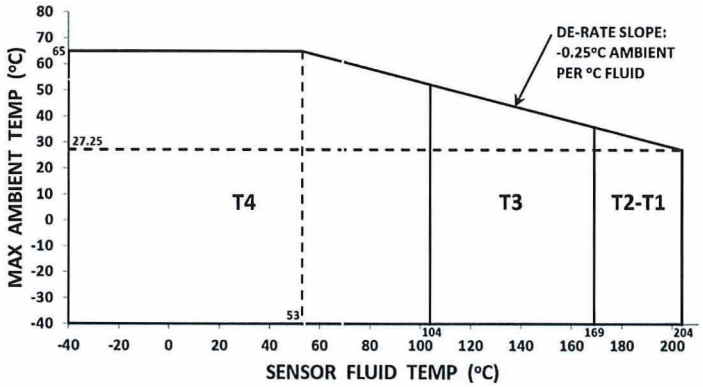


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 230 °C.

Ambient temperature range T_a -40 °C to +65 °C

When used with 5700 Transmitter with Wireless HART Output Add on Options Code "PI" or "NI" (5700*1***A***IA*** *****(NI,PI):

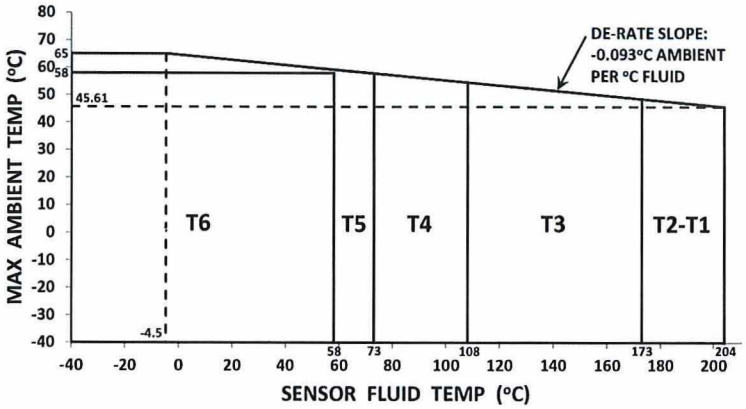


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range T_a -40 °C to +65 °C

9.2.5

Sensor type		
F300*****F*I***** H300*****F*I*****	IIB	With integral 5700
F300*****F*I***** CIC A4 H300*****F*I***** CIC A4	IIC	

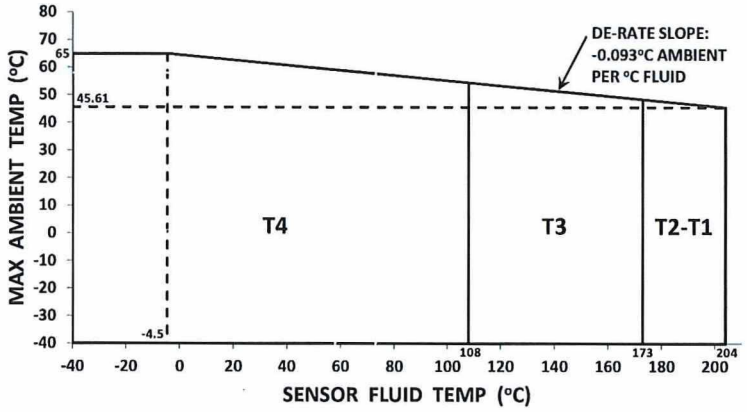


Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 226 °C.

Ambient temperature range T_a -40 °C to +65 °C

When used with 5700 Transmitter with Wireless HART Output Add on Options Code "PI" or "NI" (5700*1***A***IA*** *****(NI,PI):

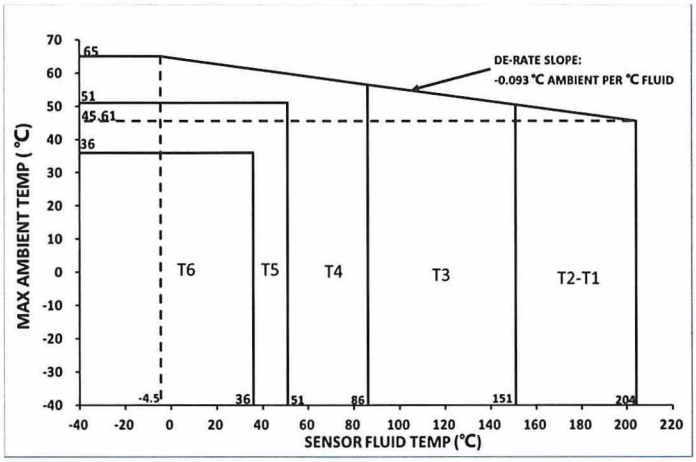


Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range T_a -40 °C to +65 °C

9.2.6.

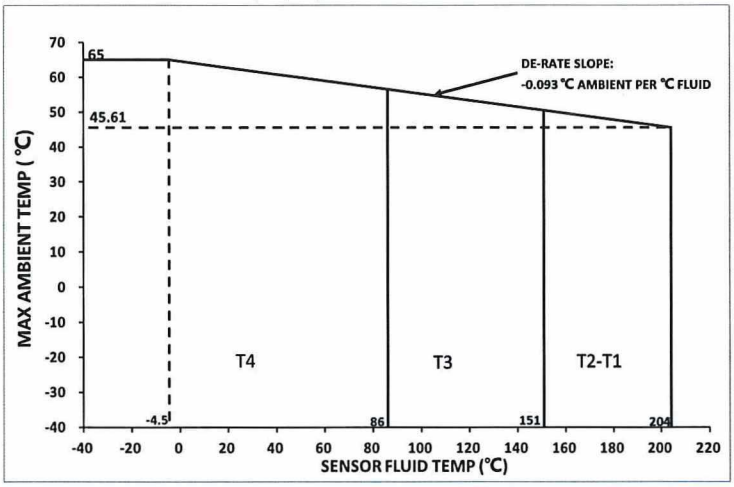
Sensor type		
F300*****F*I***** CIC A5 H300*****F*I***** CIC A5 R300*****F*I***** CIC A5	(IIC)	With integral 5700



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6:T 80°C, T5:T 95°C, T4:T 130°C, T3:T 195°C, T2 to T1: T 248°C

When used with 5700 Transmitter with Wireless HART Output Add on Options Code "PI" or "NI" (5700*1*A*IA*** *****(NI,PI):



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

Ambient temperature range T_a -40 °C to +65 °C

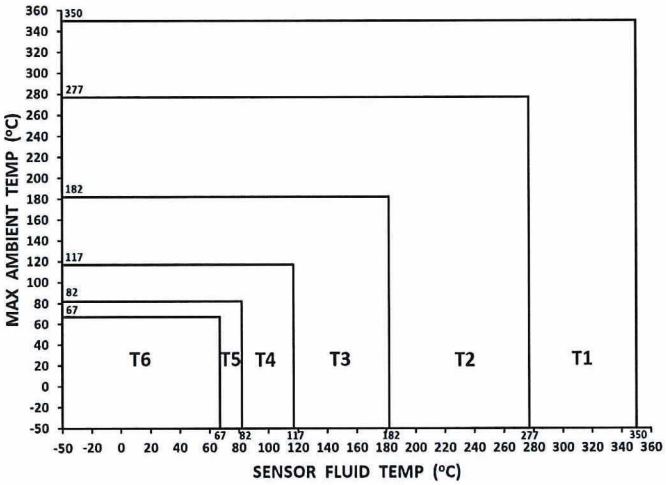
10 Type F*** (A, B, C or E) ****F*I***** with integral 5700 Transmitter

10.1 Electrical parameters see IECEx BVS 14.0090 X for the transmitter type 5700

10.2 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:

10.2.1

Sensor type	 or 	
F025(A,B)****F*I*****	IIC	With integral 5700
F025(A,B)****F*I***** CIC A1	IIC	
F050(A,B)****F*I*****	IIC	
F050(A,B)****F*I***** CIC A1	IIC	
F100(A,B)****F*I*****	IIC	
F100(A,B)****F*I***** CIC A1	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

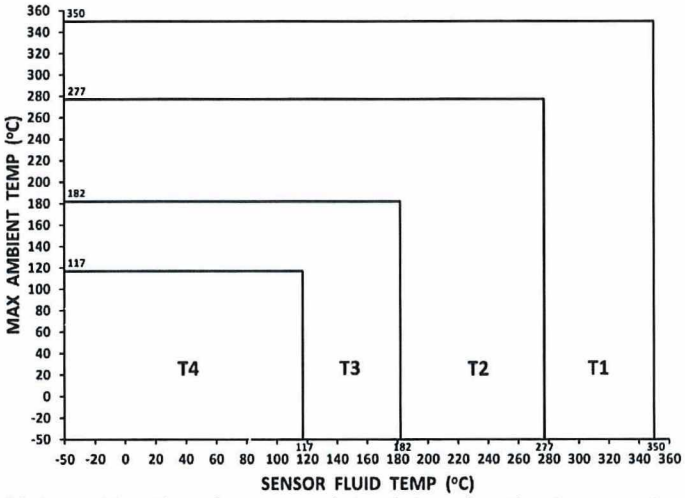
Note 2: The maximum surface temperature T for dust is as follows: T6:T 8 0°C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T 363°C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

Ambient temperature range T_a see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 65 °C even at a maximum ambient temperature of 65 °C.

When used with 5700 Transmitter with Wireless HART Output Add on Options Code "PI" or "NI" (5700*1***A***IA*** *****(NI,PI):



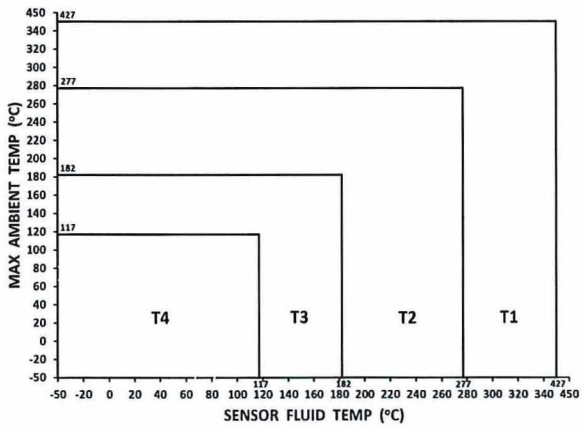
Note: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Ambient temperature range	T_a	see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 65 °C even at a maximum ambient temperature of 65 °C.

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 65 °C even at a maximum ambient temperature of 65 °C.

When used with 5700 Transmitter with Wireless HART Output Add on Options Code "PI" or "NI" (5700*1***A***IA*** *****(NI,PI):



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

Ambient temperature range	T_a	see graph

Since the electronics are mounted approx. 1 meter away from the sensor by means of a flexible stainless steel hose, or 0.23 meter away from the sensor by means of a rigid pipe extender, it is safeguarded that the electronics will not become hotter than 65 °C even at a maximum ambient temperature of 65 °C.

Specific Conditions of Use:

1 By mounting the sensor type ********(J,U)******* directly to the transmitter 22**S********** the use of the unit will be modified according to the following:

Sensor type	F025*****(J,U)*I***** F050*****(J,U)*I***** F100(S,H)****(J,U)*I***** F100(P,J)****(J,U)*I***** F200*****(J,U)*I***** F300*****(J,U)*I***** CIC A4 F300*****(J,U)*I***** CIC.A5 H025*****(J,U)*I***** H050*****(J,U)*I***** H100*****(J,U)*I***** H200*****(J,U)*I***** H300*****(J,U)*I***** CIC A4 H300*****(J,U)*I***** CIC A5 R025*****(J,U)*I***** R050*****(J,U)*I***** R100*****(J,U)*I***** R200*****(J,U)*I***** R300*****(J,U)*I***** CIC.A5 CNG050*****(J,U)*I**** F025(A,B,C,E)****J*I***** F050(A,B,C,E)****J*I***** F100(A,B,C,E)****J*I***** F025(A,B,C,E)****J*I***** CIC A1 F050(A,B,C,E)****J*I***** CIC A1 F100(A,B,C,E)****J*I***** CIC A1	F300*****(J,U)*I***** H300*****(J,U)*I*****
Transmitter type 2200S*(H or K)*1******	Ex ib IIC T4...T1	Ex ib IIB T4...T1
Transmitter type 2200S*(5 or 6)*1******	Ex ib IIC T4...T1	Ex ib IIB T4...T1

2 By mounting the sensor type ********C******* directly to the transmitter *700********** the use of the unit will be modified according to the following:

Sensor	F025*****C*I***** F050*****C*I***** F100(S,H)****C*I***** F200*****C*I***** F300*****C*I***** CIC A4 F300*****C*I***** CIC A5 H025*****C*I***** H050*****C*I***** H100*****C*I***** H200*****C*I***** H300*****C*I***** CIC A4 H300*****C*I***** CIC A5 R025*****C*I***** R050*****C*I***** R100*****C*I***** R200*****C*I***** R300*****C*I***** CIC A5 CNG050*****C*I**** F025(A,B,C,E)****C*I***** F050(A,B,C,E)****C*I***** F100(A,B,C,E)****C*I***** F025(A B,C,E)****C*I***** CIC A1 F050(A,B,C,E)****C*I***** CIC A1 F100(A,B,C,E)****C*I***** CIC A1	F300*****C*I***** H300*****C*I*****
Transmitter type *700*1[1)]*******	Ex ib IIB+H_2 T5…T1 Gb Ex tb IIIC T[3)]°C Db	Ex ib IIB T5…T1 Gb Ex tb IIIC T[3)]°C Db
Transmitter type *700*1[2)]*******	Ex ib IIC T5…T1 Gb Ex tb IIIC T[3)]°C Db	Ex ib IIB T5…T1 Gb Ex tb IIIC T[3)]°C Db
Transmitter type *700*1[1)]4******	Ex ib IIB+H_2 T4…T1 Gb	Ex ib IIB T4…T1 Gb
Transmitter type *700*1[2)]4******	Ex ib IIC T4…T1 Gb	Ex ib IIB T4…T1 Gb

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) Max. surface temperature T for dust see temperature graphs and manufacturer's instructions

3 By mounting the sensor type *********F******* directly to the transmitter 5700********** the use of the unit will be modified according to the following:

Sensor type	F025*****F*I***** F050*****F*I***** F100(S,H)****F*I***** F100(P,J)****F*I***** F100(P,J)****F*I***** CIC A2 F200*****F*I***** F300*****F*I***** CIC A4 F300*****F*I***** CIC.A5 H025*****F*I***** H050*****F*I***** H100*****F*I***** H200*****F*I***** H300*****F*I***** CIC A4 H300*****F*I***** CIC A5 R025*****F*I***** R050*****F*I***** R100*****F*I***** R200*****F*I***** R300*****F*I***** CIC A5 CNG050*****F*I***** F025(A,B,C,E)****F*I***** F050(A,B,C,E)****F*I***** F100(A,B,C,E)****F*I***** F025(A,B,C,E)****F*I***** CIC A1 F050(A,B,C,E)****F*I***** CIC A1 F100(A,B,C,E)****F*I***** CIC A1	F300*****F*I***** H300*****F*I*****
Transmitter type 5700*1[1)]*******	Ex ib IIB+H_2 T6...T1 Gb Ex tb [ib] IIIC T [3)]°C Db	Ex ib IIB T6...T1 Gb Ex tb IIIC T [3)]°C Db
Transmitter type 5700*1[2)]*******	Ex ib IIC T6...T1 Gb Ex tb [ib] IIIC T [3)]°C Db	Ex ib IIB T6...T1 Gb Ex tb IIIC T [3)]°C Gb
Transmitter type 5700*1[1)] 4******	Ex ib IIB+H_2 T4...T1 Gb	Ex ib IIB T4...T1 Gb
Transmitter type 5700*1[2)] 4******	Ex ib IIC T4...T1 Gb	Ex ib IIB T4...T1 Gb

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

4 EPL Ga (Zone 0) is permitted in the measuring pipe. The sensors may be employed only for those media, for which the wetted parts are known to be suitable.