Coriolis Mass-Flow Meter

UMC4 with TM, TME, TMU, TMR TM-SH

Supplementary Operating Manual for

Explosion-proof flow meters

This operating manual contains important information for the operation in potentially explosive atmospheres

Please read the instructions carefully and store them in a safe place for future reference

CONTENTS

Introduction

I Shipping and storage; product inspection

Shipping and Storage

The device is to be safeguarded against moisture, dirt, impact and damage.

Product inspection

Upon receipt of the product, the consignment should be checked for completeness. The data of the device have to be compared with the packing slip and the order documents

Notify us of any shipping damage immediately upon receipt of the product. Any damage claim received at a later time will not be honoured.

II Warranty

Your flow meter was manufactured in accordance with the highest quality standards and was thoroughly tested prior to shipment. However, in the event any problem arises with your device, we will be happy to resolve the problem for you as quickly as possible under the terms of the warranty which can be found in the terms and conditions of delivery. Your warranty will only be honoured if the device was installed and operated in accordance with the instructions for your device. Any mounting, commissioning and/or maintenance work is to be carried out by qualified and authorized technicians only.

III Validity of this operating manual

Note! The present instructions apply to explosion-proof Coriolis flow meters TM/TME/TMU/TMR and TM-SH series which are operated in conjunction with the UMC4 transmitter **as of year of construction November 2021 or later.**

These instructions are supplementary operating manual for non-explosion proof Coriolis flow meters. If you do not have a copy of the latter instructions, please request one from Heinrichs Messtechnik GmbH or download the instructions from our website.

The instructions herein pertain primarily to explosion proof Coriolis flow meters. The technical data in the mounting and operating instructions for non-explosion proof Coriolis flow meters still apply insofar as the present instructions do not replace them or exclude their application.

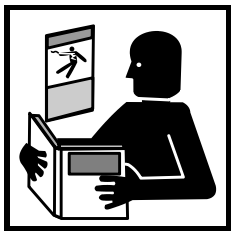
IV Repairs and hazardous materials

It is important that you do the following before shipping your flow meter to Heinrichs Messtechnik GmbH for repair:

- Enclose a description of the problem with your device. Describe in as much detail as possible the application and the physical and chemical properties of the fluid.
- Remove any residues from the device and be sure to clean the seal grooves and recesses thoroughly. This is particularly important if the fluid is corrosive, toxic, carcinogenic, radioactive or otherwise hazardous.

The operator is liable for any substance removal or personal damage costs arising from inadequate cleaning of a device that is sent for repair.

1 Steps prior to operation



Prior to installation and operation, it is essential that the operator familiarizes himself with all of the instructions and information contained in the manual for non-explosion proof Coriolis flow meters as well as the present instructions. If any part of either manual is missing, contact Heinrichs Messtechnik GmbH to request a new manual. These manuals can also be downloaded from our website.

The UMC4 transmitter described herein is only to be used to measure mass and volume flow, as well as liquid and gas density and temperature, in conjunction with a Heinrichs Messtechnik GmbH TM, TME, TMU, TMR or TM-SH sensor.

1.1 Installation, mounting, commissioning and maintenance

Installation, mounting, commissioning and maintenance are to be performed by a technician trained to work with explosion-proof devices, or by a Heinrichs Messtechnik service technician.

Warning

Any maintenance or repair which is safety relevant in terms of explosion-protection is to be carried out by the manufacturer, an authorized Heinrichs Messtechnik GmbH service centre or under the supervision of an expert in explosion proof devices.

Heinrichs Messtechnik GmbH accepts no liability for any loss or damage of any kind arising from improper operation of any product, improper handling or use of any replacement part, or from external electrical or mechanical effects, overvoltage or lightning. Any such improper operation, use or handling shall automatically invalidate the warranty for the product concerned.

In the event of a problem please contact the service centre of Heinrichs Messtechnik:

☎ Phone: +49 221 49708-0

Fax: +49 221 49708-178

@ Internet: www.heinrichs.eu

Email: info@heinrichs.eu

Contact our customer service department if your device needs repair or if you need assistance in diagnosing a problem with your device.

1.2 Hazard warnings

The purpose of the hazard warnings listed below is to ensure that device operators and maintenance personnel are not injured and that the flow meter and any devices connected to it are not damaged.

The safety advisories and hazard warnings in the present document that aim to avoid placing operators and maintenance personnel at risk and to avoid material damage are prioritized using the terms listed below, which are defined as follows in regard to the instructions herein and the advisories pertaining to the device itself.

Warning

means that failure to take the prescribed precautions **could result** in injury, substantial material damage or even death. Always comply to these warnings and proceed with caution.

Caution

means that failure to take the prescribed precaution **could result** in material damage or destruction of the device. We advise always to abide to these instructions!

Note

means that the accompanying text contains important information about the product, handling the product or about a section of the documentation that is of particular importance.

1.3 Proper use of the device

Warning:
The operator is responsible for ensuring that the material used in the sensor and transmitter housing is suitable and that such material meets the requirements for the fluid being used and the ambient site conditions. The manufacturer accepts no responsibility in regard to such material and housing.

Caution:
In order for the device to perform correctly and safely, it must be shipped, stored, set up, mounted operated and maintained properly.

2 Identification

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

☎ Phone: +49 221 49708-0
Fax: +49 221 49708-178
@ Internet: www.heinrichs.eu
Email: info@heinrichs.eu

Product type: Mass flow-rate meter for liquid and gaseous products

Product name: Sensor type: TM / TMU / TME / TMR / TM-SH
Transmitter type: UMC4

File name: umc4-tm_ex-ba_21.03_en.doc

Version: 21.03,

Print: Date, November 18, 2021

Importer: Importer Contact Details:

3 General information about explosion protection

2014/34/EU (ATEX) / UKCA 2016 Regulations (UKEX)

Example designation II 2G Ex ia IIC T6 Gb

Equipment groups

I	Equipment group I applies to equipment intended for use in underground parts of mines as well as those parts of surface installations of such mines endangered by firedamp and/or combustible dust.
II	Equipment group II applies to equipment intended for use in other places liable to be endangered by explosive atmospheres. This group is subdivided into three categories.

Equipment category

Gas	Dust	Definition
1G (0)	1 D (20)	Equipment in this category is intended for use in areas in which explosive atmospheres caused by mixtures of air and gases, vapours or mists or by air/dust mixtures are present continuously, for long periods or frequently.
2 G (1)	2 D (21)	Equipment in this category is intended for use in areas in which explosive atmospheres caused by gases, vapours, mists or air/dust mixtures are likely to occur.
3G (2)	3D (22)	Equipment in this category is intended for use in areas in which explosive atmospheres caused by gases, vapours, mists, or air/dust mixtures are unlikely to occur or, if they do occur, are likely to do so only infrequently and for a short period only.

(The numbers in round brackets correspond to the IEC Zones.)

Acc. EN 60079-0 ff / IEC 60079-0 ff

Ex = Explosion-proof electrical equipment

Examples of electrical types of protection

	General requirements	IEC 60079-0
„d“	Flameproof enclosure	IEC 60079-1
„e“	Increased safety	IEC 60079-7
„i“	Intrinsic safety (ia, ib)	IEC 60079-11
„t"	Equipment dust ignition protection by enclosure "t" (ta, tb or tc)	EN 60079-31

Explosion groups

Gases and vapours	
IIA	Acetone, benzene, fuel oil, ethanoic acid
IIB	City gas, ethylene, isoprene
IIC	Acetylene, hydrogen, carbon bisulphide
Dust Atmospheres	
IIIA	Fibers and flyings
IIIB	Non-conductive dusts
IIIC	Conductive Metal dusts

Temperature classes

Maximum surface temperature		Temperature class
450 °C	842 °F	T1
300 °C	572 °F	T2
200 °C	392 °F	T3
135 °C	275 °F	T4
100 °C	212 °F	T5
85 °C	185 °F	T6

Equipment protection level, EPL	
Gases: Ga, Gb oder Gc	Dust: Da, Db or Dc

Explosion protection designations [square brackets] refer to “Related electrical equipment or circuits.”

4 Coriolis mass flow meter

4.1 Description of the TM, TME, TMU, TMR and TM-SH sensors

The TMU sensor is an “Intrinsic safety” type of protection device that is outfitted with four independent potential-free circuits: These circuits are designed with safe segregation to one another

Excitation circuit

Pick-up circuit 1

Pick-up circuit 2

Temperature sensor circuit (PT1000)

If the transmitter is mounted externally, it should be connected to the sensor using a Heinrichs Messtechnik cable that is specially designed for this purpose.

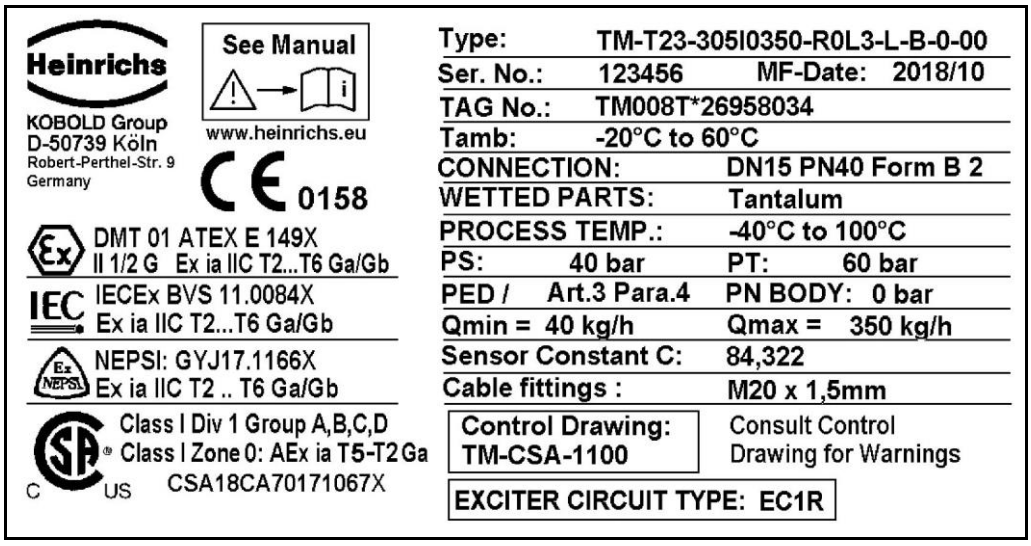
Although the appearance of the standard and explosion-proof transmitters is identical and their rating plates contain the same information, **under no circumstances** should a standard (non-explosion proof) transmitter be connected to an explosion-proof sensor!

4.2 Device identification

The rating plates on Heinrichs Messtechnik flow meters that are suitable for use in potentially explosive atmospheres are labeled accordingly. Since the sensor and transmitter have different ratings, each device has its own rating plate.

TM/TME/TMU/TMR/TM-SH rating plate

Example: TM for process temperatures ranging from - 40 °C to 100 °C.



4.3 Mounting

The mounting instructions for the standard sensor also apply to the explosion-proof sensor.

4.3.1 Thermally insulated sensor

The explosion-proof sensor may also be outfitted with thermal insulation in potentially explosive atmospheres. However, the insulation should only cover half of the support tube on which the junction box or integrated transmitter is mounted.

4.3.2 Heated sensor

To avoid crystallization in the flow tubes, the sensor can be externally heated. Any heating technique or device may be used. By use of electrical heating devices, these must be suitable for use in the potentially explosive environments.

It is the operator's responsibility to ensure that the heating temperature does not exceed the maximum allowable temperature for the fluid and/or the maximum allowable temperature range for the potentially explosive atmosphere in which the device is being operated.

The maximum allowable temperature range for the fluid is indicated on the flow meter rating plate.
It is also the operator's responsibility to ensure that no hazards are created by hot surfaces pursuant to EN 1127-1 (Explosive atmospheres - Explosion prevention and protection) paragraphs 5.1 and 6.4.2.

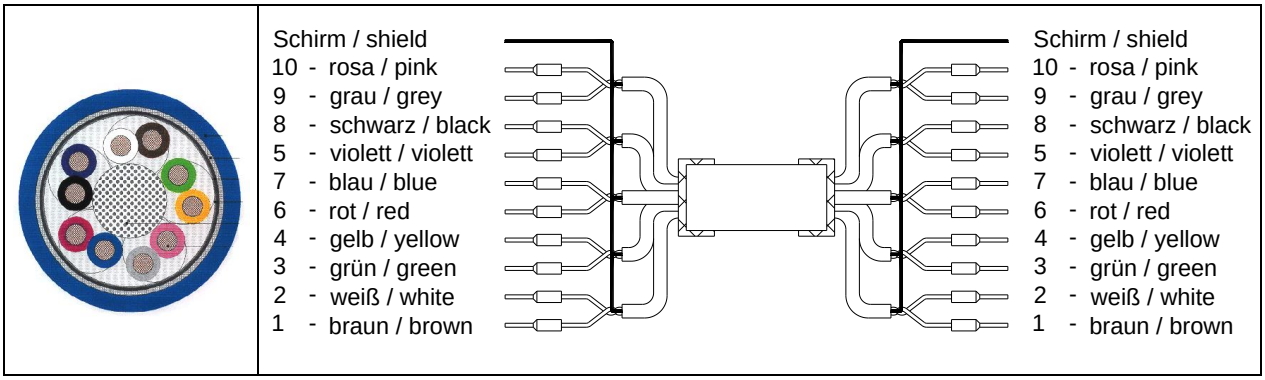
4.3.3 Connection sensor – transmitter

Compact meters (sensor and transmitter form a unit and are connected electrically)

The electrical connection is made by the manufacturer. Furthermore the proof of the intrinsic safety of the sensor circuits (according EN 60079-14) was carried out by the manufacturer and ensured. For these circuits no action is required by the operator.

Remote installation

A dedicated cable **SLI2Y (SP) CY 5 x 2 x 0.5 mm²** [**blue**] is to be used for the electrical connection between sensor and remote mount transmitter. This cable, which is available from Heinrichs Messtechnik, has five twisted pairs, each of which has a foil shield and filler cord. The filler cords are to be installed on the "shield" terminal in both the sensor and transmitter. The five twisted wire pairs are themselves shielded by tinned copper wire mesh. This external cable shield is connected to the housing via a dedicated EMC cable fitting, thus ensuring optimum noise immunity.



4.3.3.1 Sensor Cable Pin Assignment

Pin Designation	Connection / Pin Assignment	Protection Type
		Ex ia
Sensor circuit		
Pick-Up1 +	1	x
Pick-Up1 -	2	x
Pick-Up2 +	3	x
Pick-Up2 -	4	x
Tlk-	5	x
Temperature Sensor -	6	x
Temperature Sensor +	7	x
Tlk+	8	x
Exciter coil +	9	x
Exciter coil -	10	x
Schirm	Schirm	x

4.3.3.2 Cable Parameters

The operator is to comply in all cases with the applicable installation regulations of the applicable land of installation, such as: EN 60079-14 “Electrical apparatus for explosive gas atmospheres- Part 14: Electrical installations in hazardous areas

Special attention shall be paid to the cables inductive and capacitive parameters, to ensure the maximum viable values of the transmitters output parameters are not exceeded.

Sensor cables other than those supplied by Heinrichs are permissible. To ensure the intrinsically safe parameters defined for the transmitter are not exceeded, the inductivity L_L and capacity C_L of the entire cable length used shall not exceed:

L_L = 0.14 mH or
C_L = 40 nF

respectively.

Caution
If a connecting cable other than the Heinrichs Messtechnik cable is used, the intrinsic safety of the cable is to be validated using the cable’s nominal values

4.3.3.3 Equipotential bonding

Equipotential bonding between the sensor and transmitter is essential and must be established and maintained. Connection points are provided on the outside of the sensor and transmitter for this purpose.

4.4 EC Type-Examination Certificate for the sensors

The information in this manual refers to sensors approved in the type approval certificates;

	**ATEX** **(Europe)**	**DMT 01 ATEX E 149 X** **II 1/2G Ex ia IIC T6-T2 Ga/Gb**
	**IECEx** **(Global)**	**IECEx BVS 11.0084X** **Ex ia IIC T6-T2 Ga/Gb**
	**UKEX** **(United Kingdom)**	***Pending***
	**CSA** **(North America)**	**CSA18CA70171067X** **Class I Division 1 and 2, Group A,B,C,D** **Class I Zone 0: AEx ia T5-T2 Ga**
	**KCS** **(Korea)**	**12-KB4BO-0116X** **Ex ia IIC T6-T2**
	**NEPSI** **(China)**	**GYJ17.1166X** **Ex ia IIC T2~T6 Ga/Gb**

for the use in potentially explosive atmospheres. (hazardous classified locations)

The sensor may be used in such a way that inside the measuring tubes explosive atmosphere may be present often or for a long time (Zone 0).

For determining which environments your sensor is approved, and if it is suitably for the planned application, please refer to the specifications on the devices rating plate and the applicable type approval certificate.

4.5 Sensor Parameters

Warning
To ensure compliance with the requirements for explosive atmospheres, it is essential that the maximum electrical and thermal values set forth below are observed.

Exciter circuit (terminals 9 and 10)

For type EC1

Voltage	Ui	30 V
Current	Ii	90 mA
Power	Pi	0.4 W
Effective internal capacitance	Ci	negligible
Effective internal inductance	Li	4.38 mH

For exciter circuit type EC2 (remote mount transmitter configuration)

For connecting an intrinsically safe circuit with the Ex ia IIC type of protection, with linear output characteristic and the following maximum values:

Voltage	Uo	30 V
Current	Io	90 mA
Power	Po	0.8 W

Sensor circuits (terminals 1 – 2 and 3 - 4)

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

Temperature sensor circuit (terminals 5 to 8)

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

4.5.1 Ambient temperature range Ta

Depending on type of connection, installation, process temperature and temperature class:

With plug

Sensor Neck Extension	Process temperature (°C) (1)	Ambient temperature range (°C) (1)	Temperature class
without	-50 to +40	-40 to +40	T6
without	-50 to 60	-40 to +60	T5
without	-50 to 60	-40 to +10	T4
60 mm	-50 to 100	-40 to +80	T4
160 mm	-50 to 120	-40 to +80	T4
160 mm	-50 to 180	-40 to +80	T3
260 mm	-50 to 220/260 (2) (3)	-40 to +80	T2

(1) The ambient and process temperatures of the TM-SH are restricted to -40° C to +60 °C and +100 °C respectively

(2) The maximum process temperature of 260 °C only short-term. Refer to section 3.1 for more details.

(3) The process temperatures 220/260 °C are only applicable for TM, TMU and TMR sensors

Remote mount configuration

Sensor Neck Extension	Process temperature (°C)	Ambient temperature range (°C)	Temperature class
without	-50 to +40	-40 to +40	T6
without	-50 to 60	-40 to +60	T5
without	-50 to 100	-40 to +80	T4
100 mm	-50 to 120	-40 to +80	T4
100 mm	-50 to 180	-40 to +80	T3
200 mm	-50 to 220/260 (2) (3)	-40 to +80	T2

(2) The maximum process temperature of 260 °C only short-term. Refer to section 3.1 for more details.

(3) The process temperatures 220/260 °C are only applicable for TM, TMU and TMR sensors

Integral mount configuration

See chapter 5.5.5

4.5.1.1 Conditions for safe operation

When the sensor is mounted externally (remote mount configuration), equipotential bonding between the sensor and transmitter is to be realized.

If the sensor is used at an ambient temperature of less than -20 °C or greater 60°C, suitable cables, cable entries and conduit entries are to be used.

The operational wall thickness of the stainless steel flow tube is < 1 mm. The operator is to ensure that this parameter does not give rise to any risk of fluid or mechanical damage.

5 Description of the UMC4 transmitter

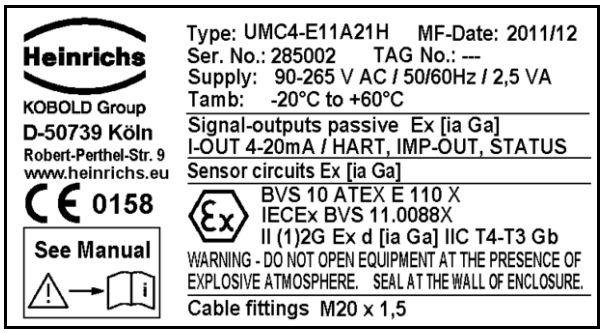
When used in conjunction with the sensor, the **UMC4** transmitter measures the mass flow of liquids and gases in pipelines. The transmitter can be mounted on the sensor or remote. The configuration can be carried out by using a built-in or standalone control unit. Thereby a high degree of adaptability to user requirements is ensured. Although the basic device settings, e.g. calibration data are factory-configured, the settings pertaining to measurement data output and evaluation are user definable.

The UMC4 drives the excitation of the oscillating system in the mass flow sensor and prepares the sensor signals (position sensor 1 and 2 and the temperature sensor Pt 1000). As a standard, 2 passive analog outputs 4-20 mA and 2 passive binary outputs are available. (1 pulse **or** 1 frequency output, 1 status output).Through current output 1, an additional digital modulated data transmission via HART® is possible.

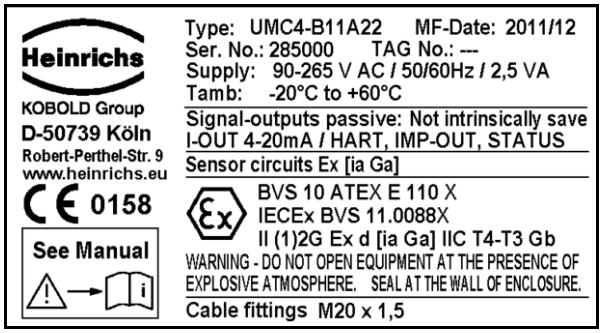
5.1 Device identification

The identification of the transmitter UMC4 is subject to the following examples.

Signal outputs intrinsically safe



Signal outputs non intrinsically safe



5.2 Ignition category of the transmitter

The transmitter and the terminals are located in an explosion proof housing Ex d. The signal outputs can be realized either as “Intrinsic safety” type of protection (“i”) or as non-intrinsically safe signal outputs. The two types of protection are not to be combined.

The transmitter complies with Category 2 for use in Zone 1, while the sensor circuits comply with Category 1 “ia.”

5.3 Electrical Connection

The connecting cables for power supply, signal outputs and sensor circuits must adhere to the requirements of EN 60079-14.

Note

- The connecting cables are to be installed in such a way that they are protected against mechanical damage and unduly high temperatures.
- The external diameters of the connecting cables must be compatible with the thickness range of the cable glands and rubber seals used.
- The cables and cable glands used must be compatible with the type of protection of the junction box being used.
- The dummy plugs used for unused cable glands must be compliant with the type of protection of the housing being used.
- It must be ensured that the cable gland gaskets are correctly seated.

5.3.1 Sensor circuits

Compact mounted transmitter UMC4

The sensor circuits in compact mounted assemblies are considered as internal connections and are already wired up and matched by the manufacturer. There is no need to check the intrinsic safety be the operator.

Remote installation of UMC4

The intrinsically safe sensor circuits are brought out from the converter with a cable tail of at least 1 m. The length of the cable can be specified when ordering.

The transmitter is fixed by a bracket to a wall or a pipe.

The sensor cable is to be installed by the operator so that it is protected from tension.

The assignment of the wire colours and the circuits see section 4.3.3

5.3.2 Electrical connection of power and signal circuits

The electrical connection of power and signal circuits are realized in the terminal compartment of the transmitter. In it are intrinsically safe and non-intrinsically safe circuits, depending on the type of protection of the signal output circuits. The type of protection of the terminal compartment is Ex d.

The installation of the cable in the terminal compartment Ex d can be done in two ways:

- Direct connection of the cable through a certified flameproof cable gland
- Direct connection of cable and wires through specially certified conduits. The associated stopping boxes must be installed close to the housing.

5.3.3 Cable and conduit entries

Cable and conduit entries are not part of the instrument and have to be supplied by the operator according the relevant way of installation. They have to be certified for the type of protection of the transmitter and fit to the cables used.

The transmitter series UMC4 for temperature class T4 does not have own ignition sources as long the transmitter runs in smooth operation. Therefore explosion proof certified cable and conduit entries with sealing ring can be used. See also EN 60079-14/10.3.

5.3.4 Equipotential bonding

When the sensor is mounted externally (remote mount configuration), equipotential bonding between the sensor and transmitter is to be realized. Terminals are provided on the outside of the sensor and transmitter for this purpose.

5.4 EU Type-Examination Certificate for the Transmitter

The information in this manual refers to transmitters approved in the type approval certificates;

ATEX (Europe)	**BVS 10 ATEX E 110 X** **II (1)2G Ex d [ia Ga] IIC T4-T3 Gb**
IECEx (Global)	**IECEx BVS 11.0088X** **Ex d [ia Ga] IIC T4-T3 Gb**
UKEX (United Kingdom)	***Pending***
CSA (North America)	***Pending***
KCS (Korea)	**12-KB4BO-0117X** **Ex d [ia] IIC T4-T3**
NEPSI (China)	***Pending***

for the use in potentially explosive atmospheres. (hazardous classified locations)

For determining which environments your transmitter is approved, and if it is suitably for the planned application, please refer to the specifications on the devices rating plate and the applicable type approval certificate.

5.5 Parameters for the UMC4 transmitter

5.5.1 Power circuit (terminals L, N and PE)

Nominal voltage		AC	90 to 230	V
Max. voltage	Um =	AC	265	V
Nominal voltage		AC	24	V
Max. voltage	Um =	AC	60	V
Nominal voltage		DC	19 to 36	V
Max. voltage	Um =	DC	60	V

5.5.2 Passive non-intrinsically safe circuits

Current output 1 (terminals 41 to 42)
Current output 2 (terminals 43 to 44)
Binary output 1, passive (terminals 46 to 47)
Binary output 2, passive (terminals 49 to 50)

Voltage	Um =	AC/DC	60	V
Max. current of power supply			500	mA

5.5.3 Sensor circuits type of protection Ex ia II

Exciter circuit, terminals 9 (grey) and 10 (pink)

Linear output characteristic				
Voltage	Uo =	DC	12.15	V
Current	Io =		90	mA
Power	Po =		271	mW
Type of protection Ex ia IIC				
Max. external inductance	Lo =		5	mH
Max. external capacitance	Co =		1320	nF
Type of protection Ex ia IIB				
Max. external inductance	Lo =		18	mH
Max. external capacitance	Co =		8400	nF

Temperature sensor circuit, terminals 5 (purple), 6 (red), 7(blue), 8(black)

Voltage	Uo =	DC	12.15	V
Current	Io =		3.84	mA
Power	Po =		12	mW
Linear output characteristic				
Type of protection Ex ia IIC				
Max. external inductance	Lo =		1000	mH
Max. external capacitance	Co =		1305	nF
Type of protection Ex ia IIB				
Max. external inductance	Lo =		1000	mH
Max. external capacitance	Co =		8385	nF

Sensor circuits, (terminals, 1(brown) - 2(white) and 3(green) – 4(yellow))

Values for each circuit				
Voltage	Uo =	DC	12.15	V
Current	Io =		16	mA
Power	Po =		47	mW
Linear output characteristic				
Type of protection Ex ia IIC				
Max. external inductance	Lo =		140	mH
Max. external capacitance	Co =		1305	nF
Type of protection Ex ia IIB				
Max. external inductance	Lo =		510	mH
Max. external capacitance	Co =		8385	nF

5.5.4 Signal output circuits with Ex ia II type of protection

Passive current output 1 (terminals 11-12) and

Passive current output 2 (terminals 13-14) with Ex ia IIC type of protection

Voltage	Ui =	DC	30	V
Current	Ii =		150	mA
Power	Pi =		1,3	W
Internal inductance	Li =		0,1	mH
Internal capacitance	Ci =		20	nF

Binary outputs

Passive binary output 1 (terminals 16 - 17)
Passive binary output 2 (terminals 19 – 20)
Potential free opto coupler-output current with Ex ia IIC type of protection

Voltage	Ui =	DC	30	V
Current	Ii =		200	mA
Power	Pi =		3	W
Effective internal inductance	Li =		negligible	
Effective internal capacitance	Ci =		negligible	

5.5.5 Ambient temperature range Ta

For type UMC4-B*** (compact version)**

As a function of process temperature, type of installation and temperature class according to the following table:

Sensor Neck Extension	Process temperature - 20 °C up to	Ambient temperature - 20 °C up to	Temperature class
Without	100 °C	60 °C	T4
Without	130 °C	55 °C	T4
Without	150 °C	50 °C	T3

For the types UMC4-D*** and UMC4-E***** (remote version).**

If the transmitter is installed remote from the process, the ambient temperature range is -20°C to +60 °C.

6 Installation and Commissioning

The mounting instructions for the standard sensor also apply to the explosion-proof sensor.

Depending on the approval of the connected transmitter, the sensor may either be:

- Compact mounted, mechanically fastened to the transmitter presenting a single unit.
  or
- Remotely installed and connected with a special sensor cable.

6.1 Special conditions for safe use for the UMC4

a) For the electrical connections, specially certified cable entries and/or plugs are to be used in accordance with the prevailing type of protection and ambient temperature. Furthermore, the connection cable used must be suitable for the prevailing ambient temperature range.

b) When conduit entries are connected to the transmitter enclosure, they must be certified for this purpose and the associated stopping boxes must be mounted in the immediately vicinity of the enclosure.

c) Integral mounted transmitters are designed with intrinsically safe sensor circuits. All electrical relevant values are coordinated by Heinrichs Messtechnik and not important for the user.

d) For type UMC4-E***** and UMC4-D***** transmitters, and when using a connection cable other than the manufactures specified cable, the intrinsic safety of the cable is to be validated using the cables nominal parameters:

Cable capacitance	100 pF/m	L_L = 0.7mH/km
Cable inductance	0.7 µH/m	L_L = 0.5mH/km

e) For type UMC4-E***** transmitters the sensor cable must be installed in such a way that tensile force is omitted.

f) Damaged threaded or flat joints which may impair the IP protection of the enclosure shall **not** be repaired or modified. The equipment shall be returned to the manufacturer for repair and replacement.

6.2 General conditions for safe operation

a) If the conditions described in this document are not adhered to or if there is any inappropriate interference with the equipment, the manufactures warranties expire.

b) Conditions described in this manual, as well as the permitted operating conditions which have been defined for the sensor and which are stated on the rating plates must be adhered to.

c) Appropriate measures shall be met to prevent any unintentional or inadmissible damage to the device.

d) The operator shall ensure that the equipment is only installed in areas which comply with the approved types of protection and environments.

e) All connected electrical equipment must be suitable for its intended use.

f) The operator shall ensure protection against lightning according to local regulations

g) The danger of objects falling onto the sensor shall be excluded

h) For ambient/process temperature ranges and when determining the prevailing temperature class for the sensor, pay special attention to the temperature tables in the EU type certificate

i) The maximum process temperature of 260 °C is only permitted for periods of maximum 1 hour, for example during the ramping up of the process temperature, or temperature regulation. Prolonged operation at temperatures above 220 °C may lead to an accelerated deterioration insulation materials and thus a reduction in the sensors life span.

6.3 Requirements for installation in all environments

a) The installation of the intrinsically safe circuits requires a control drawing (system description), to be issued by the operator/erector.

b) The equipment is only to be installed and connected in a de-energized state.

c) The sensor is to be installed (from specialists) according to applicable regulations.

d) When mounted separately (remote mount configuration), equipotential bonding between the sensor and transmitter must be ensured

e) It is to be insured that the intrinsically safe circuits of the sensor cable are not laid together with non-intrinsically safe circuits.

f) If the sensor is used at an ambient temperature of less than -20 °C or greater 60 °C, suitable cables, cable entries and conduit entries are to be used.

g) The operational wall thickness of the stainless steel flow tubes may be < 1 mm. In this case, the operator is to ensure that in the area of these tubes, no risk of damage by the process medium or through mechanical influence shall occur.

h) Although the measuring tubes are in constant oscillation, the deflection of this oscillation is significantly smaller (< 1 mm) than the materials stress levels allow and thus presents no addition requirements for protective measures.

i) The sensor may be used in such a way that in the measuring tubes an explosive atmosphere may be present occasionally or for a long period of time.

j) Seized screws or adhering joints (e.g. by frost or corrosion) are not to be opened with force when the presence of a potentially explosive atmosphere is considered possible.

k) Where substances of explosion group “A” or “IIC” are present and the presence of an Ex-atmosphere is considered possible, only non-sparking tools shall be used.

l) The electrical connections from the sensor to the junction box are made by means of a connection flange. Care must be taken to guarantee the IP protection class.

6.4 Ex relevant screw and bolt torques

Potential Equalisation fixation	6 Nm
Nuts sensor-neck/J-box	6 Nm
Screws J-box lid (Aluminium)	2 Nm
Screws J-box lid (Polyester)	1.2 Nm
Cable glands to J-box adapter	12 Nm
Cable gland caps	8 Nm

7 Maintenance and repair work

7.1 Definition of terms according to IEC 60079-17:

Maintenance: defines a combination of any actions carried out to retain an item in, or restore it to, conditions in which it is able to meet the requirements of the relevant specification and perform its required functions.

Inspection: defines any action comprising careful scrutiny of an item carried out either without dismantling, or with the addition of partial dismantling as required, supplemented by means such as measurement, in order to arrive at reliable conclusion as to the condition of an item.

Visual inspection: defines an inspection which identifies, without the use of access equipment and tools, those defects, such as missing bolts, which will be apparent to the eye.

Close inspection: defines an inspection which encompasses those aspects covered by a visual inspection and, in addition, identifies those defects, such as loose bolts, which will be apparent only be the use of access equipment, for example steps, where necessary, and tools.

Detailed inspection: defines an inspection which encompasses those aspects covered by a close inspection and, in addition, identifies those defects, such as loose terminations, which will only be apparent by opening the enclosure, and/or using, where necessary, tools and test equipment.

a) Maintenance or replacement work must be carried out by qualified personnel only, i.e. personnel qualified according to TRBS 1203 or similar.

b) Only auxiliary components which comply with all European and national directives and legislations may be used in potentially explosive atmospheres

c) After maintenance and repair works have been performed, all barriers and notices removed for that purpose must be returned to their original place.

d) In the event that faults of the equipment are detected, the equipment is to be removed. The internal components cannot be repaired by the customer. The equipment is to be returned to the manufacturer for inspection.

e) With the exception of the replaceable mains fuse, fuses may **not** be replaced by the operator, since affected Zener-diodes must also be simultaneously replaced. This work requires a follow-up adjustment, which can only be carried out at the manufacturer's factory.

7.2 Recommended inspection intervals

Activity	Visual inspection	Close inspection	Detailed inspection
	3 month interval	6 month interval	12 month interval
Visual inspection of equipment for intactness, removal of dust settlements	X		
Check of electrical system for intactness and functionality			X
Check of entire system		User's responsibility	

7.3 Fault elimination

No repairs or modifications may be performed on equipment that is operated in conjunction with explosive atmospheres. Such equipment shall only be repaired by expert personnel trained and authorized to do so.

Damaged threaded or flat joints which may impair the IP protection of the enclosure shall not be repaired or modified. The equipment shall be returned to the manufacturer for repair or replacement.

7.4 Disposal

Packaging material and worn components shall be disposed of according to the regulations applicable in the country of installation.

8 Warning notices

- The thread of the cable gland entry is stated on the rating plate
- The exciter circuit type as specified in the certificates is stated on the rated plate
- The following warnings or similar wordings are either printed on the rating plate, or are stated in the Operating Manual:

  "Substitution of components may impair intrinsic safety"

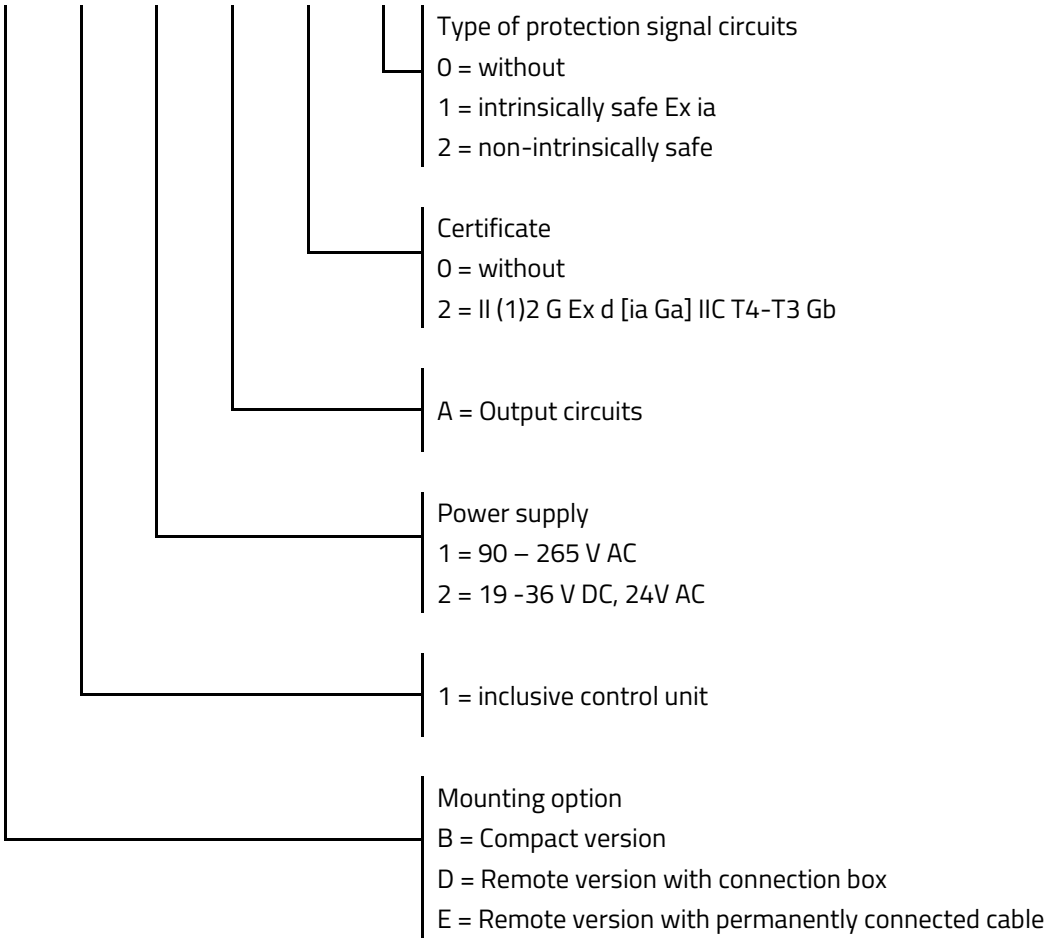
  "Do not open when energized or when an explosive atmosphere is present"
- The following warning or similar wording is printed on the plastic cover of the TME sensor body:

  Caution! Electrostatic charging possible; To be considered during cleaning and maintenance work.

9 Model codes

9.1 The Transmitter UMC4

UMC4	-	A	B	C	D	E	F



9.2 The TM Sensor

TM-	A	B	C	-	D	E	F	G	H	I	J	K	-	L	M	N	O	-	P	-	Q	-	R	-	S

Pos.	Description	Remarks / EX-Relevance
A	Wetted Material	Non-Ex relevant position
B,C	Flow-Rate Range	Non-Ex relevant position
D,E,F,G	Process Connection	Non-Ex relevant position
H,I,J,K	Installation Length	Non-Ex relevant position
L	Enclosure Options	Non-Ex relevant position
M	Heating / Cooling	Non-Ex relevant position
N	Flow Direction	Non-Ex relevant position
O	**Sensor configurations**	
(*2) (*3)	1 - Mounted -50°C to 100°C (-58°C to 212°F)	Refer to Transmitter approval
	2 - Mounted -50°C to 150°C (-58°F to 302°F)	Refer to Transmitter approval
	3 - Remote -50°C to 100°C (-58°F to 212°F)	with M20 x 1.5 mm Cable gland (**Al**)
	4 - Remote -50°C to 180°C (-58°F to 356°F)	with M20 x 1.5 mm Cable gland (**Al**)
	5 - Remote -50°C to 220/260°C (-58°F to 500°F)	with M20 x 1.5 mm Cable gland (**Al**)
	6 - Remote -50°C to 100°C (-58°F to 212°F)	with ½" NPT Cable gland
	7 - Remote -50°C to 180°C (-58°F to 356°F)	with ½" NPT Cable gland
	8 - Remote -50°C to 220/260°C (-58°F to 500°F)	with ½" NPT Cable gland
	S- Remote -50°C to 100°C (-58°F to 212°F)	with M20 x 1.5 mm Cable gland (**PE**)
	T - Remote -50°C to 180°C (-58°F to 356°F)	with M20 x 1.5 mm Cable gland (**PE**)
	U - Remote -50°C to 220/260°C (-58°F to 500°F)	with M20 x 1.5 mm Cable gland (**PE**)
P **(*1)**	**Approvals**	
	A - ATEX / IECEx – up to Supplement 6	II 1/2G Ex ia IIC T2...T6 Ga/Gb
	L - ATEX / IECEx – Supplement 7 onwards	II 1/2G Ex ia IIC T2...T6 Ga/Gb
Q	Certificates	Non-Ex relevant position
R	Supplementary equipment	Non-Ex relevant position
S,T,U,V	Additional Options	Non-Ex relevant position
xxxxxx	Up to 6 further Positions	Non-Ex relevant position

(*1) = After implementation of ATEX supplement 7 (IEC issue 1), sensors of supplement 6 (IEC issue 0) with the code „A" shall no longer be produced, and are therefore no longer available for delivery.

(*2) = The Abbreviations Al and PE determine whether an aluminium (Al) or polyester (PE) terminal box is selected.

(*3) = The maximum process temperature of 260 °C is only permitted short-term. Refer to section 6.2 for more details

9.3 The TMU Sensor

TMU-	A	B	C	D	-	E	F	G	H	-	I	J	K	-	L	M	-	N	O	-	P	-	Q

Pos.	Description	Remarks / EX-Relevance
A	Wetted Material	Non-Ex relevant position
B,C,D	Model size	Non-Ex relevant position
E,F,G,H	Process Connection	Non-Ex relevant position
I	Enclosure Options	Non-Ex relevant position
J	Heating / Cooling	Non-Ex relevant position
K	Heating / Cooling connections	Non-Ex relevant position
L	**Sensor configurations**	
(*2) (*3)	A - Mounted -50°C to 100°C (-58°F to 212°F)	Refer to Transmitter approval
	B - Mounted -50°C to 150°C (-58°F to 302°F)	Refer to Transmitter approval
	C - Remote -50°C to 100°C (-58°F to 212°F)	with ½" NPT Cable gland (**Al**)
	D - Remote -50°C to 180°C (-58°F to 356°F)	with ½" NPT Cable gland (**Al**)
	E - Remote -50°C to 220/260°C (-58°F to 500°F)	with ½" NPT Cable gland (**Al**)
	F - Remote -50°C to 100°C (-58°F to 212°F)	with M20 x 1.5 mm Cable gland (**Al**)
	G - Remote -50°C to 180°C (-58°F to 356°F)	with M20 x 1.5 mm Cable gland (**Al**)
	H - Remote -50°C to 220/260°C (-58°F to 500°F)	with M20 x 1.5 mm Cable gland (**Al**)
	K - Remote -50°C to 100°C (-58°F to 212°F)	with HAN R23 Connector
	L - Remote -50°C to 180°C (-58°F to 356°F)	with HAN R23 Connector
	M - Remote -50°C to 220/260°C (-58°F to 500°F)	with HAN R23 Connector
	S- Remote -50°C to 100°C (-58°F to 212°F)	with M20 x 1.5 mm Cable gland (**PE**)
	T - Remote -50°C to 180°C (-58°F to 356°F)	with M20 x 1.5 mm Cable gland (**PE**)
	U - Remote -50°C to 220/260°C (-58°F to 500°F)	with M20 x 1.5 mm Cable gland (**PE**)
	X - Customer specified	
M	**Approvals**	
(*1)	A - ATEX / IECEx – up to Supplement 6	II 1/2G Ex ia IIC T2...T6 Ga/Gb
	L - ATEX / IECEx – Supplement 7 onwards	II 1/2G Ex ia IIC T2...T6 Ga/Gb
N	Calibration Flow	Non-Ex relevant position
O	Calibration Density	Non-Ex relevant position
P	Supplementary Equipment	Non-Ex relevant position
Q	Design	Non-Ex relevant position
xxxxxx	Up to 6 further Positions	Non-Ex relevant position

(*1) = After implementation of ATEX supplement 7 (IEC issue 1), sensors of supplement 6 (IEC issue 0) with the code „A" shall no longer be produced, and are therefore no longer available for delivery.

(*2) = The Abbreviations Al and PE determine whether an aluminium (Al) or polyester (PE) terminal box is selected.

(*3) = The maximum process temperature of 260 °C is only permitted short-term. Refer to section 6.2 for more details

9.4 The TME Sensor

TME -	A	B	C	-	D	E	F	G	H	I	J	-	K	-	L	-	M	-	N

Pos.	Description	Remarks / EX-Relevance
A	Wetted Material	Non-Ex relevant position
B,C	Flow-Rate Range	Non-Ex relevant position
D,E,F,G	Process Connection	Non-Ex relevant position
H	Heating / Cooling	Non-Ex relevant position
I	Flow Direction	Non-Ex relevant position
J	**Sensor configurations**	
(*2)	1 - Mounted -50°C to 100°C (-58°C to 212°F)	Refer to Transmitter approval
	2 - Mounted -50°C to 150°C (-58°F to 302°F)	Refer to Transmitter approval
	3 - Remote -50°C to 100°C (-58°F to 212°F)	with M20 x 1.5 mm Cable gland (**Al**)
	4 - Remote -50°C to 180°C (-58°F to 356°F)	with M20 x 1.5 mm Cable gland (**Al**)
	6 - Remote -50°C to 100°C (-58°F to 212°F)	with ½" NPT Cable gland
	7 - Remote -50°C to 180°C (-58°F to 356°F)	with ½" NPT Cable gland
	S- Remote -50°C to 100°C (-58°F to 212°F)	with M20 x 1.5 mm Cable gland (**PE**)
	T - Remote -50°C to 180°C (-58°F to 356°F)	with M20 x 1.5 mm Cable gland (**PE**)
K	**Approvals**	
(*1)	A - ATEX / IECEx – up to Supplement 6	II 1/2G Ex ia IIC T2...T6 Ga/Gb
	L - ATEX / IECEx – Supplement 7 onwards	II 1/2G Ex ia IIC T2...T6 Ga/Gb
L	Certificates	Non-Ex relevant position
M	Supplementary equipment	Non-Ex relevant position
N	Design	Non-Ex relevant position
xxxxxx	Up to 6 further Positions	Non-Ex relevant position

(*1) = After implementation of ATEX supplement 7 (IEC issue 1), sensors of supplement 6 (IEC issue 0) with the code „A" shall no longer be produced, and are therefore no longer available for delivery.

(*2) = The Abbreviations Al and PE determine whether an aluminium (Al) or polyester (PE) terminal box is selected.

9.5 The TMR Sensor

TMR -	A	B	C	-	D	E	F	G	H	I	J	K	-	L	M	N	O	-	P	-	Q	-	R

Pos.	Description	Remarks / EX-Relevance
A	Wetted Material	Non-Ex relevant position
B,C	Flow-Rate Range	Non-Ex relevant position
D,E,F,G	Process Connection	Non-Ex relevant position
H,I,J,K	Installation Length	Non-Ex relevant position
L	Enclosure Options	Non-Ex relevant position
M	Heating / Cooling	Non-Ex relevant position
N	Flow Direction	Non-Ex relevant position
O	**Sensor configurations**	
(*2) (*3)	1 - Mounted -50°C to 100°C (-58°C to 212°F)	Refer to Transmitter approval
	2 - Mounted -50°C to 150°C (-58°F to 302°F)	Refer to Transmitter approval
	3 - Remote -50°C to 100°C (-58°F to 212°F)	with M20 x 1.5 mm Cable gland (**Al**)
	4 - Remote -50°C to 180°C (-58°F to 356°F)	with M20 x 1.5 mm Cable gland (**Al**)
	5 - Remote -50°C to 220/260°C (-58°F to 500°F)	with M20 x 1.5 mm Cable gland (**Al**)
	6 - Remote -50°C to 100°C (-58°F to 212°F)	with ½" NPT Cable gland
	7 - Remote -50°C to 180°C (-58°F to 356°F)	with ½" NPT Cable gland
	8 - Remote -50°C to 220/260°C (-58°F to 500°F)	with ½" NPT Cable gland
	S- Remote -50°C to 100°C (-58°F to 212°F)	with M20 x 1.5 mm Cable gland (**PE**)
	T - Remote -50°C to 180°C (-58°F to 356°F)	with M20 x 1.5 mm Cable gland (**PE**)
	U - Remote -50°C to 220/260°C (-58°F to 500°F)	with M20 x 1.5 mm Cable gland (**PE**)
P **(*1)**	**Approvals**	
	A - ATEX / IECEx – up to Supplement 6	II 1/2G Ex ia IIC T2...T6 Ga/Gb
	L - ATEX / IECEx – Supplement 7 onwards	II 1/2G Ex ia IIC T2...T6 Ga/Gb
Q	Certificates	Non-Ex relevant position
R	Supplementary equipment	Non-Ex relevant position
xxxxxx	Up to 6 further Positions	Non-Ex relevant position

(*1) = After implementation of ATEX supplement 7 (IEC issue 1), sensors of supplement 6 (IEC issue 0) with the code „A" shall no longer be produced, and are therefore no longer available for delivery.

(*2) = The Abbreviations Al and PE determine whether an aluminium (Al) or polyester (PE) terminal box is selected.

(*3) = The maximum process temperature of 260 °C is only permitted short-term. Refer to section 6.2 for more details

9.6 The TM-SH Sensor

TM-SH -	A	B	C	D	-	E	F	G	H	-	I	J	K	-	L	M	-	N	O	-	P	-	Q

Pos.	Description	Remarks / EX-Relevance
A,B	Model / Range	Non-Ex relevant position
C,D	Wetted Material	Non-Ex relevant position
E,F,G,H	Process Connection	Non-Ex relevant position
I	Enclosure Options	Non-Ex relevant position
J	Enclosure Filling	Non-Ex relevant position
K	Heater / cooling	Non-Ex relevant position
L	**Sensor configurations**	
	K - Remote -40°C to 60°C (-40°F to 140°F)	Connection via M20 1,5 connector
	L - Remote -40°C to 100°C (-40°F to 212°F)	Connection via M20 1,5 connector
	X - Customer specified	Connection via M20 1,5 connector
M **(*1)**	**Approvals**	
	A - ATEX / IECEx – up to Supplement 6	II 1/2G Ex ia IIC T2...T6 Ga/Gb
	L - ATEX / IECEx – Supplement 7 onwards	II 1/2G Ex ia IIC T2...T6 Ga/Gb
N	Calibration Flow	Non-Ex relevant position
O	Calibration Density	Non-Ex relevant position
P	Supplementary Equipment	Non-Ex relevant position
Q	Design	Non-Ex relevant position

(*1) = After implementation of ATEX supplement 7 (IEC issue 1), sensors of supplement 6 (IEC issue 0) with the code „A" shall no longer be produced, and are therefore no longer available for delivery

10 Declaration of conformity

10.1 EU Declaration of Conformity

EU-Konformitätserklärung
EU-Declaration of Conformity

Nº. 21-4142-02

Hersteller: *Manufacturer:*	Heinrichs Messtechnik GmbH Robert-Perthel-Strasse 9 50739 Köln
Produktbeschreibung: *Product description:*	**Coriolis Durchflussmessgerät UMC4 für Verwendung mit der Sensorreihen TM* und HPC** ***Coriolis Flowmeter UMC4 for use with the Sensor series TM* and HPC***

Hiermit erklären wir, in alleiniger Verantwortung, dass das oben genannte Messsystem den Anforderungen der folgenden EU-Richtlinien, einschließlich allen bis heute veröffentlichten Änderungen bzw. Nachträgen entspricht:
We declare herewith, in sole responsibility, that the product described above is conform with the provisions of the following EU-directives, including all published changes and amendments as of today:

2014/30/EU (EMC)	EU-Richtlinie über die Elektromagnetische Verträglichkeit *EU-Directive relating to electromagnetic compatibility*
2014/34/EU (ATEX)	EU-Richtlinie über Geräte zur Bestimmungsgemäße Verwendung in explosionsgefährdeten Bereichen. *EU-Directive relating to electrical equipment intended for use in potentially explosive atmospheres*
2014/35/EU (LVD)	EU-Richtlinie über die Bereitstellung elektrischer Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen auf dem Markt *EU-Directive relating to the making available on the market of electrical equipment designed for use within certain voltage limits*
2014/68/EU (PED)	EU-Richtlinie zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung von Druckgeräten auf dem Markt *EU-Directive* on the harmonisation of the laws of the Member States relating to the making available on the market of pressure equipment

Anhang N und X sind ein integraler Bestandteil dieser Erklärung
***Annex N and X** are an integral part of this declaration*

Köln, den 27.09.2021

Joseph Burke
(Explosionsschutzbeauftragter /
Explosion Protection Representative)

Michael Manderfeld
(Druckgerätebeauftragter /
PED Representative)

Guido Thometzki
(Geschäftsführung / Managing Director)

Kontakt: Tel: +49 (221) 49708-0
Contact: Email: info@heinrichs.eu
Web: www.heinrichs.eu

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Anhang N zur EU-Konformitätserklärung
Annex N of the EU-Declaration of Conformity

N°. 21-4142-02

Produktbeschreibung: / *Product description:*
Coriolis Durchflussmessgerät UMC4 für Verwendung mit der Sensorreihen TM* und HPC
Coriolis Flowmeter UMC4 for use with the Sensor series TM* and HPC

Die Konformität mit den auf Seite 1 genannten Richtlinien diese Erklärung wird nachgewiesen durch die Einhaltung folgenden Normen (abhängig von Gerätvariant):
Conformity to the Directives referred to on Page 1 of this Declaration is assured through the application of the following standards (depending on version of device):

Richtlinie *Directive*	Norm –Ref. Nr. *Standard / Ref. N°.* *DIN EN -*	Ausgabe *Edition*	Norm Beschreibung Standard Description	UMC4	UMC4-RM	TM/ TMU/ TME/ TMR	TM-SH	HPC
2014/30/EU	61000-6-2	2011-06	Immunity Industrial enviroment	X	X			
	61000-6-3	2012-11	Emission residential enviroment	X	X			
	55011	2011-04	Radio frequency disturbance	X	X			
	61326-1	2011-07	EMC requirements	X	X			
2014/34/EU	60079-0	2012+ A11:2013	General requirements	X				
	60079-0	2018	General requirements		X	X	X	X
	60079-1	2015	Flameproof Enclose "d"	X				
	60079-7	2014	Increased Safety "e"		X			
	60079-11	2012	Intrinsic Safety "i"	X	X	X	X	X
	60079-26	2015	Protection Level (EPL) „Ga"	X		X	X	
2014/35/EU	61010	2011-07	Safety requirements	X	X	X	X	
2014/68/EU	AD 2000-Merkblätter		Module H			X	X	

X: Zutreffende Norm / Applicable Standard

Name und Anschrift der Notifizierte Stelle / *Name and Address of the Notified Body*

TÜV-SÜD Industrie Service GmbH
TÜV SÜD Gruppe
Westendstraße 199
D-80686 München
ID-Nr. / *ID-N°.*: RL 2014/68/EU: 0036

DEKRA Testing and Certification GmbH
Carl-Beyling-Haus
Dinnendahlstraße 9
D-44809 Bochun
ID-Nr. / *ID-N°.*: RL 2014/34/EU: 0158

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CE **Anhang X zur EU-Konformitätserklärung**
Annex X of the EU-Declaration of Conformity

Nº. 21-4142-02

Produktbeschreibung: *Product description:* **Coriolis Durchflussmessgerät UMC4 für Verwendung mit der Sensorreihen TM* und HPC**
Coriolis Flowmeter UMC4 for use with the Sensor series TM* and HPC

Gerät Zulassungen / Device certification

EG-Baumusterprüfbescheinigung ***EC-type examination certificate***	**Nachtrag** ***Supplement***	**Kennzeichnung** ***Marking*** ***For complete Marking refer to certificate***	UMC4	UMC4-RM	TM/TMU/ TME/TMR	TM-SH	HPC
BVS 10 ATEX E 110 X	1	II (1) 2G	X				
BVS 21 ATEX E 063 X	0	II (1) 3G		X			
DMT 01 ATEX E 149 X	8	II 1/2G			X	X	
CML 19 ATEX 2096 X	0	II 1G & II 1/2D					X

X: Zutreffende Norm / Applicable Standard

Die oben genannten Produkte entsprechen der Richtlinie 2014/34/EU. Neue Editionen können bereits eine oder mehrere der in den jeweiligen EU-Baumusterprüfbescheinigungen genannten Normen ersetzt haben. Der Hersteller erklärt, dass alle Produkte erwähnt in dieser Konformitätserklärung auch der Anforderungen der neuen Editionen einhalten, da die veränderten Anforderungen der neuen Editionen haben entweder keinen Einfluss auf das Produkt, oder das Produkt die Anforderungen erfüllt.

The above-mentioned products comply with the requirements of Directive 2014/34/EU. New editions may have already replaced one or more of the Standards stated in the respective EU-Type-examination Certificates. The manufacturer declares that all products mentioned in this Declaration of Conformity also comply with the requirements of the new editions since the changed requirements of the new editions either do not affect the product, or the product also fulfills the requirements.

Heinrichs Messtechnik GmbH
Robert-Perthel-Straße 9
50739 Köln
Telefon 0221/49708-0
Telefax 0221/49708-178
http://www.heinrichs.eu
info@heinrichs.eu

Bankverbindung
Dresdner Bank Köln
BLZ 370 800 40
Konto-Nr. 0955 051300
IBAN :
DE58 3708 0040 0955 0513 00
SWIFT-BIC: DRES DE FF 370

Erfüllungsort und Gerichtsstand:
Köln
Amtsgericht Köln HRA 37040

Ust. IDNr.: DE813416533
Steuer-Nr.: 217/5743/0386

Geschäftsführer
Dipl. Ing. (FH)
Guido Thometzki

10.2 UKCA Declaration of Conformity

Declaration of Conformity

Nº. 21-4142-51

Manufacturer:	Heinrichs Messtechnik GmbH Robert-Perthel-Strasse 9 50739 Cologne Germany
Product description:	**Coriolis Flowmeter UMC4 for use with the Sensor series TM* and HPC**

We declare herewith, in sole responsibility, that the product described above is conform with the provisions of the following UKCA regulations, including all published changes and amendments as of today:

Electromagnetic Compatibility Regulations 2016 (ECR 2016)	UK Regulations relating to the electromagnetic compatibility (applies to add-on electrical switches) of electrical equipment to be placed on the GB market
Electrical Equipment Safety Regulations 2016 (EER 2016)	UK Safety Regulations relating to electrical equipment intended to be placed on the GB market
Potentially Explosion Atmospheres Regulations 2016 (PEAR 2016)	UK-Regulations relating to electrical equipment intended for use in potentially explosive atmospheres
Pressure Equipment Safety Regulations 2016 (PESR 2016)	UK Safety Regulations relating to the making available of pressure equipment on the GB market.

Annex N and X are an integral part of this declaration

Cologne, 8th October 2021

Joseph Burke
Explosion Protection Representative

Michael Manderfeld
Pressure Equipment Representative

Guido Thometzki
Managing Director

Contact: Tel: +49 (221) 49708-0
Email: info@heinrichs.eu
Web: www.heinrichs.eu

Name and Address of Importer:

UKCA_DofC_UMC4_21-4142-51.docx Page **1** of **3**

Annex N of the Declaration of Conformity

Nº. 21-4142-51

Product description: **Coriolis Flowmeter UMC4 for use with the Sensor series TM* and HPC**

Conformity to the regulations referred to on Page 1 of this Declaration is assured through the application of the following standards (possibly dependent on version of device):

Regulations	Standard / Ref. Nº. BS EN -	Edition	Standard Description	UMC4	UMC4-RM	TM/ TMU/ TME/ TMR	TM-SH	HPC
ECR 2016	61000-6-2	2011-06	Immunity Industrial environment	X	X			
	61000-6-3	2012-11	Emission residential environment	X	X			
	55011	2011-04	Radio frequency disturbance	X	X			
	61326-1	2011-07	EMC requirements	X	X			
PEAR 2016	60079-0	2018-07	General requirements	X	X	X	X	X
	60079-1	2014-10	Flameproof Enclose “d“	X				
	60079-7	2015-12	Increased Safety “e”		X			
	60079-11	2012-01	Intrinsic Safety “i“	X	X	X	X	X
	60079-26	2015-01	Protection Level (EPL) „Ga“	X		X	X	
EER 2016	61010	2017-03	Safety requirements	X	X	X	X	
PESR 2016	EN 13480, ASME B31.3 AD 2000-leaflets		Module H			X	X	

X: Applicable Standard

Name and Address of the Notified Body

TÜV-SÜD Industrie Service GmbH
TÜV SÜD Gruppe
Westendstraße 199
D-80686 München
Germany
ID-Nº.: RL 2014/68/EU: 0036
UK CAB Body-Nº.: *TBD*

SGS Baseefa Ltd
Rockhead Business Park,
Staden Lane,
Buxton, SK17 9RZ,
UNITED KINGDOM
UK CAB Body-Nº.: 1180

Annex X of the Declaration of Conformity

Nº. 21-4142-51

Product description: **Coriolis Flowmeter UMC4 for use with the Sensor series TM* and HPC**

Device certification:

Type examination certificate	Supplement	Marking *For complete Marking refer to certificate*	UMC4	UMC4-RM	TM/TMU/ TME/TMR	TM-SH	HPC
BVS 10 ATEX E 110 X	1	II (1) 2G	X				
BVS 21 ATEX E 063 X	0	II (1) 3G		X			
DMT 01 ATEX E 149 X	8	II 1/2G			X	X	
CML 19 ATEX 2096 X	0	II 1G & II 1/2D					X

X: Zutreffende Norm / Applicable Standard

The above-mentioned products comply with the requirements of the "Potentially Explosion Atmospheres Regulation 2016". New editions may have already replaced one or more of the Standards stated in the respective Type-examination Certificates. The manufacturer declares that all products mentioned in this Declaration of Conformity also comply with the requirements of the new editions since either the changed requirements of the new editions do not affect the product, or the product also fulfills the requirements.

Heinrichs Messtechnik GmbH
Robert-Perthel-Straße 9
50739 Cologne
Germany
Telefon 0221/49708-0
Telefax 0221/49708-178
http://www.heinrichs.eu
info@heinrichs.eu

Bank Details
Dresdner Bank Cologne
BLZ 370 800 40
Konto-Nr. 0955 051300
IBAN :
DE58 3708 0040 0955 0513 00
SWIFT-BIC: DRES DE FF 370

Place and Court of Jurisdiction:
Cologne
District Court
Cologne: HRA 37040
VAT ID-Nr.: DE813416533
TAX ID-Nr.: 217/5743/0386

Managing Director
Dipl. Ing. (FH) Guido Thometzki