

Issued by NMI Certin B.V.

In accordance with – “Metrologiewet” (Stb. 2006, 137)
– “Regeling nationaal autonoom geregelde meetinstrumenten”

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

Part A **measurement transducer** (calculating/indicating device for Heinrichs Coriolis sensors) intended to be used as a part of a CG dispenser.

Producer's mark or name : Heinrichs


Type designation : UMC4 or UMC4-RM

Accuracy class : 2,0

Destined for the measurement of : Hydrogen (H2)

Further properties and test results are described in the annexes:
– Description TC11764 revision 2;
– Documentation folder TC11764-2.

Initially issued 5 August 2020

Remark  This revision replaces the previous revisions with exception of the documentation folder.

Issuing Authority

The Designated Body, NMI Certin B.V.
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Certification Board

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1 General information about the measurement transducer

Properties of this measurement transducer, whether mentioned or not, shall not conflict with the legislation.

This Test Certificate is the positive result of the applied voluntary, modular approach, for a component of a measuring instrument, as described in WELMEC 8.8.

The complete measuring instrument must be covered by relevant metrological certification that is valid in the country where the instrument is put into use.



Example of the UMC4



Example of the UMC4-RM

The UMC4 measurement transducer is to be used with a Heinrichs measurement sensor in a remote mount setup (connected via signal cable). The measurement transducer generates drive signal and processes the signal from the pick-up coils. After being temperature compensated, the measuring signal is converted into an output signal that is consistent with the measuring range of the flow sensor.

1.1 Essential parts

The measurement transducer can be composed of the following parts:

Description	Documentation	Remarks
Standard assembly	11764/0-01	
RM assembly	11764/0-02	
Main Printed circuit boards	11764/0-03 and 11764/0-04 11764/1-01 and 11764/1-02	
Base plate Printed circuit boards	11764/0-05 and 11764/0-06 11764/1-03 and 11764/1-04	For RM assembly

1.2 Essential characteristics

1.2.1 Temperature range ambient

- -25 °C / +55 °C
- -40 °C / +55 °C in case the measurement results are read and/or recorded with a connected approved instrument and via an approved output

1.2.2 Environment classes

- M1 / E2

1.2.3 Power supply

The measurement transducer is powered in the range 19 - 36Vdc (-15% / +10%).

1.2.4 Software specification (refer to WELMEC 7.2)

- Software type P;
- Risk Class C;
- Extension T, while extensions L, S and D are not applicable.

Software versions	CRC Checksum	Remarks
5.24	031E	-
5.241	D2D5	-
5.245	5C09	-

The validity of the program and the parameters are continuously checked. If these checks fail, an alarm is generated. The metrological software is identified by the software version and/or checksum, which can be checked by cycling the menu:

Menu → Transmitter Setting → software version.

In no flow conditions the software version of the legally relevant part of the code is shown on the display every 2 minutes.

1.2.5 Temperature correction

In the flow transducer a temperature correction is applied depending on the connected sensor type. Temperature correction for the sensor behaviour due to process temperature variations takes automatically place by default, based on the integral temperature sensor and the configured temperature coefficients in the electronics.

1.2.6 Data communication

The measurement transducer is capable of indicating several quantities. Use for Weights and Measures related purposes is allowed for the following quantities:

- Mass.

The following output(s) can be used for legally relevant data:

- Display;
- Dual frequency output (maximum frequency is 1 kHz).

1.3 Essential shapes

1.3.1 Inscriptions

On the measurement transducer, clearly visible, at least the following is inscribed:

- Test Certificate number TC11764;
- Name or trade mark of the producer;
- Type designation;
- Serial number and year of manufacture.

See documentation no. 11764/0-07 for an example of the markings.

1.3.2 Indication

The meter is equipped with an electronic display and can be operated using the push buttons on the display module.

1.3.3 EMI protection measures

The following measures are taken for EMI protection:

- The housing of the measurement transducer must be grounded.
- The cable to the measurement sensor must be shielded.

1.4 Conditional parts

1.4.1 UMC4 Housing

The measurement transducer electronics is placed in either a "field enclosure" aluminium housing (UMC4) or a "rack mount" stainless steel housing (UMC4-RM).

See chapter 1 and documentation no. 11764/0-01 and 11764/0-02 for further details.

1.5 Conditional characteristics

1.5.1 Programming

The W&M switch on the display board is in the locked position when slide to the left. (see documentation number 11764/0-08). In this case no parameters or data can be altered. It is not possible to change the position of the dipswitch without breaking a seal.

1.5.2 Parameter settings

The legally relevant settings, which cannot be altered anymore after putting the device into Custody Transfer Mode (see documentation number 11764/0-08), are as follows:

Parameter	Setting	Remarks
Device information		
Serial number	Numerical value	
Transmitter ID	Numerical value	
Software version	See paragraph 1.2.4	
CRC -checksum	See paragraph 1.2.4	
Measured values and units		
Flow unit	g or kg	If display is used for legal purpose the flow unit must be in kg.

Parameter	Setting	Remarks
Binary output 1	Pulse	
Binary output 2/ status output	Pulse 2, 90° phase -shifted	
Pulse value	0,001/0,01/0,1/1/10/100/1000	Pulse value must be configured to matching the calculating and indicating device parameter.
damping	1 – 60 seconds	Maximum setting for damping is 5 seconds
Cut-offs parameters		
Low flow cut off	0%	
Low flow hysteresis	0-10%	
Installation direction	Forward	
Calibration parameters		
Flow calibration	Factory calibration settings	

- All parameter settings may be read out and displayed:
 - by the electronic calculating/indicating device connected to the measurement transducer, or
 - for example via a computer temporarily connected to the measurement transducer (HART terminal);

1.5.3 Alarm handling

Under the following conditions the measurement transducer generates an accountable alarm:

- if the meter is in the test mode or in the maintenance mode;
- if the flow rate is outside certain pre-programmed limits;
- the checking facilities of the electronics detect an event potentially influencing the measurement performance.

During an accountable alarm the following actions are taken:

- the alarms are registered in the event logger;
 - the B pulse train of the dual frequency outputs is automatically pulled "high", enable alarm detection by the electronic calculating/indicating device connected to the measurement transducer.
- additionally for alarms generated due to time-out or power fail events:
- The measurement transducer will reboot and the alarm will be reset automatically.

2 Seals

The following seals are applied:

- The inscriptions are fixed to the measurement transducer and secured against removal by seal or it will be destroyed when removed.
- The housing of the measurement transducer is sealed against opening after the measurement transducer is set to Custody Transfer mode.
- The cable connection from the measurement transducer to the measurement sensor is protected against disconnection by sealing of the terminal box.

See documentation no. 11764/1-05 for an example of the sealing positions.

3 Conditions for conformity assessment

- Other parties may use this Test Certificate only with the written permission of the producer.
- Before taken into use the measurement sensor shall be calibrated on the product it is going to measure or on a product with similar properties at operating temperature and pressure (if possible).
- The calibration can be performed on site or at a test laboratory. In the latter case the relevant parameter settings must be registered and checked at the initial verification on site.
- The UMC4/UMC4-RM transducer or it's electronics may be replaced for identical parts. After replacement a zero calibration must be performed, the connected measurement sensor does not need to be re-calibrated.

4 Reports

An overview of the performed tests is given in Evaluation Report ER11764 revision 2 issued together with this Test Certificate.