



Translation

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

(2) **- Directive 94/9/EC -**

**Equipment and protective systems intended for use
in potentially explosive atmospheres**

(3) **DMT 01 ATEX E 081 U**

(4) **Equipment: Signal processing device type 700**

(5) **Manufacturer: Micro Motion, Inc.**

(6) **Address: Boulder, Co. 80301, USA**

(7) The design and construction of this component and any acceptable variation thereto are specified in the schedule to this type examination certificate.

(8) The certification body of Deutsche Montan Technologie GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this component has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the test and assessment report BVS PP 01.2060 EG.

(9) The Essential Health and Safety Requirements are assured by compliance with:

EN 50014:1997+A1-A2 General requirements

EN 50020 :1994 Intrinsic safety 'i'

(10) The sign "U" placed after the certificate number indicates that the certificate must not be mistaken for a certificate for equipment or a protective system. This certificate may only be used as the basis for the certification of equipment or a protective system.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified component in accordance to Directive 94/9/EC.

Further requirements of the Directive apply to the manufacturing process and supply of this component. These are not covered by this certificate.

(12) The marking of the equipment shall include the following:

II 2G EEx ib IIB/IIC T5

Deutsche Montan Technologie GmbH

Essen, dated 25. June 2001

Signed: Jockers

Signed: Dill

DMT-Certification body

Head of special services unit



(13)

Appendix to

(14)

EC-Type Examination Certificate

DMT 01 ATEX E 081 U

(15) 15.1 Subject and type

Signal processing device type 700

15.2 Description

The signalprocessing device is used for the connection of sensors to transmitters.

The electrical components are completely encapsulated in a plastic housing. On the top of the housing terminals for the connection of the circuits from/to the transmitter are situated and the connection of the sensor is by means of a 9 pin connector at the bottom.

15.3 Parameters

15.3.1 Input circuit (terminals 1 - 4)

| | | | | |
|--------------------------------|----------------|----|------|----|
| voltage | U _i | DC | 17,3 | V |
| current | I _i | | 484 | mA |
| power | P _i | | 2,1 | W |
| effective internal capacitance | C _i | | 2200 | pF |
| effective internal inductance | L _i | | 30 | μH |

15.3.2 Output (sensor) circuits

15.3.2.1 Drive circuit (pins 7 - 8)

| | | | | |
|---------------------|----------------|----|------|---|
| voltage | U _o | DC | 10,5 | V |
| current | I _o | | 2,45 | A |
| power | P _o | | 2,54 | W |
| internal resistance | R _i | | 4,32 | Ω |

for group IIC

| | | | | |
|---|----------------|--|------|------|
| max. external capacitance | C _o | | 2,41 | μF |
| max. external inductance | L _o | | 5,9 | μH |
| max. external inductance/resistance ratio | Lo/Ro | | 5,5 | μH/Ω |

for group IIB

| | | | | |
|---|----------------|--|------|------|
| max. external capacitance | C _o | | 16,8 | μF |
| max. external inductance | L _o | | 24 | μH |
| max. external inductance/resistance ratio | Lo/Ro | | 22 | μH/Ω |

15.3.2.2 pick-off circuits (pins 3up to 6)

| | | | | |
|---------|----------------|----|------|----|
| voltage | U _o | DC | 17,3 | V |
| current | I _o | | 6,9 | mA |
| power | P _o | | 30 | mW |

for group IIC

| | | | | |
|---|----------------|--|------|------|
| max. external capacitance | C _o | | 353 | nF |
| max. external inductance | L _o | | 742 | mH |
| max. external inductance/resistance ratio | Lo/Ro | | 1,19 | mH/Ω |



| | | | | |
|--|---------------------------|------|---------------------|----|
| for group IIB | | | | |
| max. external capacitance | Co | 2,06 | μ F | |
| max. external inductance | Lo | 2,97 | H | |
| max. external inductance/resistance ratio | Lo/Ro | 4,75 | mH/ Ω | |
| 15.3.2.3 Temperature circuit (pins 1, 2 and 9) | | | | |
| voltage | Uo | DC | 17,3 | V |
| current | Io | | 26 | mA |
| power | Po | | 112 | mW |
| for group IIC | | | | |
| max. external capacitance | Co | 353 | nF | |
| max. external inductance | Lo | 52,6 | mH | |
| max. external inductance/resistance ratio | Lo/Ro | 0,32 | mH/ Ω | |
| for group IIB | | | | |
| max. external capacitance | Co | 2,06 | μ F | |
| max. external inductance | Lo | 210 | mH | |
| max. external inductance/resistance ratio | Lo/Ro | 1,26 | mH/ Ω | |
| 15.3.3 | ambient temperature range | Ta | -40 °C up to +60 °C | |

(16) Test and assessment report
BVS PP 01.2060 EG as of 25.06.2001

(17) Special conditions for safe use

7.1 The signal processing device has to be mounted inside an enclosure degrees of protection min. IP 20 in accordance with EN 60529.


7.2 The installation of the signalprocessing device inside an enclosure has to be done in a way that the distance in air between the connection facilities and earthed metal parts is min. 3 mm.

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

45307 Essen, 25.062001
BVS-Schu/Mi A 20000632

Deutsche Montan Technologie GmbH


DMT-Certification body


Head of special services unit

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USA

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Datum 24.06.2003

Ladies and Gentlemen,

we added the Revision Report as of 24.06.2003 to the Test and Assessment Report
BVS PP 01.2060 EG.

We confirm, that the Certificate

DMT 01 ATEX E 081 U as of 25.06.2001

is still valid.

Kind regards
BBG Prüf- und Zertifizier GmbH


U. Jockers


U. Wittler

Enclosures: Revision Report
Descriptive Documents

Exam
BBG Prüf- und Zertifizier
GmbH

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Translation

(1) 1st Supplement to the EC-Type Examination Certificate

- (2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC Supplement accordant with Annex III number 6
- (3) No. of EC-Type Examination Certificate: **DMT 01 ATEX E 081 U**
- (4) Component: **Signal processing device type 700**
- (5) Manufacturer: **Micro Motion, Inc.**
- (6) Address: **7070 Winchester Circle, Boulder, Co. 80301, USA**
- (7) The design and construction of this component and any acceptable variation thereto are specified in the appendix to this supplement.
- (8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this component has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive. The examination and test results are recorded in the Test and Assessment Report BVS PP 01.2060 EG.
- (9) The Essential Health and Safety Requirements are assured by compliance with:
- EN 60079-0:2012 General requirements**
EN 60079-11:2012 Intrinsic safety "i"
- (10) The sign "U" placed after the certificate number indicates that the certificate must not be mistaken for a certificate for equipment. This certificate may only be used as the basis for the certification of equipment.
- (11) This supplement to the EC-Type Examination Certificate relates only to the design, examination and tests of the specified component in accordance to Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this component. These are not covered by this certificate.
- (12) The marking of the component shall include the following:

 **II 2G Ex ib IIB/IIC Gb**
II 2D Ex ib IIIC Db

DEKRA EXAM GmbH
Bochum, dated 2014-01-27

Signed: Dr. Eickhoff

Certification body

Signed: Dr. Wittler

Special services unit

- (13) Appendix to
- (14) **1st Supplement to the EC-Type Examination Certificate
DMT 01 ATEX E 081 U**
- (15) 15.1 Subject and type

Signal processing device type 700

15.2 Description

The signal processing device can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report; the circuitry of the Signal processing device has been modified and the signal processing device has been assessed in acc. with the current standard versions EN 60079-*. This leads to a modified marking.

15.3 Parameters

15.3.1 Input circuit (terminals 1 - 4)

| | | | | |
|--------------------------------|----------------|----|------|----|
| Voltage | U _i | DC | 17.3 | V |
| Current | I _i | | 484 | mA |
| Power | P _i | | 2.1 | W |
| Effective internal capacitance | C _i | | 2200 | pF |
| Effective internal inductance | L _i | | 30 | μH |

15.3.2 Output (sensor) circuits

15.3.2.1 Drive circuit (pins 7 - 8)

| | | | | |
|---------------------|----------------|----|------|---|
| Voltage | U _o | DC | 10.5 | V |
| Current | I _o | | 2.45 | A |
| Power | P _o | | 2.54 | W |
| Internal resistance | R _i | | 4.32 | Ω |

for group IIC

| | | | | |
|---|--------------------------------|--|------|------|
| max. external capacitance | C _o | | 2.41 | μF |
| max. external inductance | L _o | | 5.9 | μH |
| max. external inductance/resistance ratio | L _o /R _o | | 5.5 | μH/Ω |

for groups IIB and IIIC

| | | | | |
|---|--------------------------------|--|------|------|
| max. external capacitance | C _o | | 16.8 | μF |
| max. external inductance | L _o | | 24 | μH |
| max. external inductance/resistance ratio | L _o /R _o | | 22 | μH/Ω |

15.3.2.2 Pick-Off circuits (pins 3up to 6)

| | | | | |
|---------|----------------|----|------|----|
| Voltage | U _o | DC | 17.3 | V |
| Current | I _o | | 6.9 | mA |
| Power | P _o | | 30 | mW |

for group IIC

| | | | | |
|---|--------------------------------|--|------|------|
| max. external capacitance | C _o | | 353 | nF |
| max. external inductance | L _o | | 742 | mH |
| max. external inductance/resistance ratio | L _o /R _o | | 1.19 | mH/Ω |

for groups IIB and IIIC

| | | | | |
|---|--------------------------------|--|------|------|
| max. external capacitance | C _o | | 2.06 | μF |
| max. external inductance | L _o | | 2.97 | H |
| max. external inductance/resistance ratio | L _o /R _o | | 4.75 | mH/Ω |



15.3.2.3 Temperature sensor circuit (pins 1, 2 and 9)

| | | | | |
|---|-------|----|------|------|
| Voltage | Uo | DC | 17.3 | V |
| Current | Io | | 26 | mA |
| Power | Po | | 112 | mW |
| for group IIC | | | | |
| max. external capacitance | Co | | 353 | nF |
| max. external inductance | Lo | | 52.6 | mH |
| max. external inductance/resistance ratio | Lo/Ro | | 0.32 | mH/Ω |
| for groups IIB and IIIC | | | | |
| max. external capacitance | Co | | 2.06 | μF |
| max. external inductance | Lo | | 210 | mH |
| max. external inductance/resistance ratio | Lo/Ro | | 1.26 | mH/Ω |

15.3.3 Ambient temperature range (temperature at mounting place) Ta -40 °C up to +60 °C
 max. temperature increase 35 K

(16) Test and Assessment Report

BVS PP 01.2060 EG as of 2014-01-27

(17) Installation instructions

- 17.1 The signal processing device has to be mounted inside an enclosure; for such an enclosure cl. 6.1 of EN 60079-11 has to be regarded.
- 17.2 The installation of the signal processing device inside an enclosure has to be done in a way that the clearances between the connection facilities and earthed metal parts is min. 3 mm.
- 17.3 The signal processing device is designed for use in a temperature range of -40 °C to +60 °C; the max. temperature rise (selective at the surface of the plastic enclosure) is ≤ 35K.

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

DEKRA EXAM GmbH
 44809 Bochum, 2014-01-27
 BVS-Schu/Ma A 20140025



Certification body



Special services unit