



Translation

EC-Type Examination Certificate

(1)

EC-Type Examination Certificate

(2)

**- Directive 94/9/EC -
Equipment and protective systems intended for use
in potentially explosive atmospheres**

(3)

BVS 09 ATEX E 031 X

(4) **Equipment:** **Electronic type MFE ***

(5) **Manufacturer:** **Bopp & Reuther Messtechnik GmbH**

(6) **Address:** **67346 Speyer, Germany**

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

(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 equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the test and assessment report BVS PP 09.2035 EG.

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

EN 60079-0:2006 General requirements

EN 60079-11:2007 Intrinsic safety 'i'

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.

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

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

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

 **II 2G Ex ib IIC T4**

DEKRA EXAM GmbH

Bochum, dated 18. March 2009

Signed: Simanski

Certification body

Signed: Dr. Eickhoff

Special services unit

(13)

Appendix to

(14)

EC-Type Examination Certificate

BVS 09 ATEX E 031 X

(15) 15.1 Subject and type

Electronic type MFE *

Instead of the * in the complete denomination the numeral 1 or 2 will be inserted.

15.2 Description

The electronic is used in combination with an oval wheel meter for volume measurement of liquids.

The electronic circuitry is mounted inside a plastic enclosure, which has a window on the front side for monitoring a display.

The electronics is supplied by a battery.

15.3 Parameters

15.3.1 Sensor circuits for the connection of a passive contact (connections A and B and terminals X4 1 and X4 2 for type MFE2)

| | | | | |
|----------------------|----------------|----|-----|----|
| Voltage | U _o | DC | 3.6 | V |
| Current | I _o | | < 1 | mA |
| Power | P _o | | < 1 | mW |
| External capacitance | C _o | | 1 | μF |
| External inductance | L _o | | 1 | mH |

15.3.2 Open collector output (connection terminals X4 5 – X4 4, only for type MFE2)

| | | | | |
|----------------------|----------------|----|-----|------------|
| Voltage | U _i | DC | 30 | V |
| Current | I _i | | 100 | mA |
| Power | P _i | | 0.5 | W |
| Internal capacitance | C _i | | | negligible |
| Internal inductance | L _i | | | negligible |

15.3.3 Ambient temperature range Ta -20 °C up to +70 °C

(16) Test and assessment report

BVS PP 09.2035 EG as of 18.03.2009

(17) Special conditions for safe use

The electronic has to be installed in a way that electrostatic charging is impossible.

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

44809 Bochum, 18. March 2009
BVS-Schu / Her A 20080824

DEKRA EXAM GmbH



Certification body



Special services unit



1st Supplement

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

to the EC-Type Examination Certificate BVS 09 ATEX E 031 X

Equipment: Elektronik type MFE *
Manufacturer: Bopp & Reuther Messtechnik GmbH
Address: 67346 Speyer, Germany

Description

The electronic can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report. A version

type MFE3

is also possible. The electronic of type MFE3 is supplied by an external power supply unit.

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

EN 60079-0:2006 General requirements
EN 60079-11:2007 Intrinsic safety 'i'

The marking of the equipment shall include the following:

 II 2G Ex ib IIC T4

Special conditions for safe use

The electronic has to be installed in a way that electrostatic charging is impossible.

Parameters for type MFE3

| | | | | | |
|---|---|----|----|-----|----|
| 1 | Power supply (terminals X4.5 and X4.6 resp. X4.3 and X4.4) | | | | |
| | Voltage | Ui | DC | 30 | V |
| | Current | Ii | | 100 | mA |
| | Power | Pi | | 1 | W |
| | Internal capacitance | Ci | | 12 | nF |
| | Internal inductance | Li | | 50 | μH |
| 2 | Sensor circuits for the connection of a passive contact (connections X1.1 / X1.2 and X2.1 / X2.2) | | | | |
| | Values for each circuit | | | | |
| | Voltage | Uo | DC | 5.9 | V |
| | Current | Io | | 7 | mA |
| | Power | Po | | 10 | mW |
| | External capacitance | Co | | 1 | μF |
| | External inductance | Lo | | 1 | mH |

| | | | | | |
|---|---|----|----|-----------------------|----|
| 3 | Sensor circuit for the connection of a passive contact (terminals X4.1 and X4.2) | | | | |
| | Voltage | Uo | DC | 5.9 | V |
| | Current | Io | | 14 | mA |
| | Power | Po | | 20 | mW |
| | External capacitance | Co | | 1 | µF |
| | External inductance | Lo | | 1 | mH |
| 4 | Sensor circuit for the connection of a passive PT1000 (connections X3.1 and X3.2) | | | | |
| | Voltage | Uo | DC | 5.9 | V |
| | Current | Io | | 20 | mA |
| | Power | Po | | 30 | mW |
| | External capacitance | Co | | 1 | µF |
| | External inductance | Lo | | 1 | mH |
| 5 | Open collector output (terminals X4.8 – X4.7) | | | | |
| | Voltage | Ui | DC | 30 | V |
| | Current | Ii | | 100 | mA |
| | Power | Pi | | 0.5 | W |
| | Internal capacitance | Ci | | negligible | |
| | Internal inductance | Li | | 50 | µH |
| 6 | Ambient temperature range Ta | | | -20 °C - up to +70 °C | |

Test and assessment report
BVS PP 09.2035 EG as of 03.11.2010

DEKRA EXAM GmbH
Bochum, 03.11.2010

Signed: Hans Christian Simanski

Signed: Dr. Franz Eickhoff


Certification body

Special services unit

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

44809 Bochum, 03.11.2010
BVS-Schu/Schae A 20100878

DEKRA EXAM GmbH



Certification body



Special services unit