


(1) EC-TYPE-EXAMINATION CERTIFICATE

ZELM ex

- (2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**
- (3) EC-TYPE-EXAMINATION CERTIFICATE Number:

ZELM 15 ATEX 0547 X

- (4) Equipment: **Level indicator MBA810, MBA820 and MBA888**
- (5) Manufacturer: **MBA Instruments GmbH**
- (6) Address: **Friedrich-List- Str. 3-7, D-25451 Quickborn**
- (7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.
- (8) The Prüf- und Zertifizierungsstelle ZELM Ex certifies as notified body No. 0820 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, 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 confidential report ZELM Ex 17914131115.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0:2012 + A11:2013 **EN 60079-31:2014**
- (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 schedule to this certificate.
- (11) This EC-type-examination Certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this Certificate.
- (12) The marking of the equipment shall include the following:

 **II 1/2 D Ex ta/tb IIIC T100°C Da/Db**

Braunschweig, 2015-12-10

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Zertifizierungsstelle ZELM ex
Dipl.-Ing. Harald Zelm



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EC-type-examination Certificates without signature and stamp are not valid. The certificates may only be circulated without alteration. Extracts or alterations are subject to approval by the Prüf- und Zertifizierungsstelle ZELM ex. The English version is based on the German text. In the case of dispute, the German text shall prevail.

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Prüf- und Zertifizierungsstelle
Siekgraben 56 · D-38124 Braunschweig

(14) **EC-TYPE-EXAMINATION CERTIFICATE ZELM 15 ATEX 0547 X**(15) Description of equipment

The level indicators MBA810, MBA820 and MBA888 are used to indicate limit values in containers for bulk material.

The devices include a step motor which drives a shaft where at the end a paddle is attached. The rotation of the shaft is detected. The torque of the motor is adjusted according to the bulk material, that this is not sufficient to rotate the paddle, when the paddle is covered by the bulk material. The output signal is thus, depending on the application, the change between rotation and blocking of the shaft.

The types MBA810 and MBA820 are designed as a connection box (aluminum). The motor shaft is led out by a separable shaft housing (aluminum or stainless steel). The shaft housing is available in a standard version and in an extended version, which offers the possibility of mounting a protective tube. The motor shaft is provided with a connection possibility for the mounting of a paddle directly or indirectly via a shaft extension. The paddles, shaft extensions, protective tubes and other accessories such as cooling sections, angle gears and various flange connections are offered by the manufacturer and are not part of this EC-type examination certificate. The two types differ only in the electrical version. The type MBA810 is the 230 VAC and the type MBA820 the 24 VDC version.

The MBA888 is a compact version with a permanently installed connection cable. The housing of aluminum or stainless steel consists of the cover and the shaft housing, which are inseparably connected to each other. At this type, a standard paddle is already fixed to the motor shaft, the motor shaft can be designed in various lengths. There is also a 24 VDC (short cover) and a 230 VAC (extended cover) version available.

The level indicator is designed for use in areas requiring category 2D (zone 21), provided. In addition, the shaft end can also be inserted into areas requiring category 1D (zone 20) when the device is installed over the process port in a certain partition wall and the zone separation is ensured by the installation. For this purpose, the device is equipped with a seal at the process port. The tightness of the process connection has not been tested within the scope of the EC type-examination.

Type MBA810 and MBA820**II 1/2 D Ex ta/tb IIIC T100°C Da/Db**

The permissible ambient temperature range is: -20°C to +50°C

The permissible medium temperature range is: -20°C to +80°C

Type MBA888**II 1/2 D Ex ta/tb IIIC T100°C Da/Db**

The permissible ambient temperature range is: -20°C to + 60°C

The permissible medium temperature range is: -20°C to + 80°C

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SCHEDULE

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Electrical data

Power supply

MBA810

MBA820

MBA888 115...230 VAC

MBA888 24 VDC

Rated values:

Un = 115...240 VAC

P < 6 VA

Un = 24 VDC

P < 6 W

Un = 115...230 VAC

P < 8 VA

Un = 24 VDC

P < 8 W

(16) Report No.

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(17) Special conditions for safe use

1. The device is intended for use in areas requiring category 2D (zone 21). In addition, the shaft end with paddles can also be inserted into areas requiring category 1D (zone 20) when the device is installed into the appropriate partition via the process port and the zone separation is performed through the installation. The tightness of the process connection in the sense of zone separation has not been examined within the framework of the EC type examination.
2. Before each device a fuse with a breaking capacity of min. 1500 A had to be installed.
3. **Type MBA888 only:** For process temperatures above +60°C, ensure that in the voltage free state the temperature of the case at the place of the cable gland will not exceed 60°C with appropriate measures.
4. **Type MBA810 and MBA820 only:** At process temperatures above +50°C, ensure that in the voltage free state at the process temperature the case temperature of the electronic box at the connection point of the shaft case will not exceed 50°C.
5. **Type MBA810 and MBA820 only:** The temperature at the wire junction is +80°C.
6. **Type MBA810 and MBA820 only:** Do not open the device under voltage. Wait 40minutes before opening after shutting down.

(18) Essential Health and Safety Requirements

Met by standards. The rating applies only to the above-mentioned level indicators. Separated components are not part of this evaluation.

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