

MBA 2.2 and MBA 3.2

The rugged level indicators for bulk material with explosion proof certifications for **DUST** and **GAS**



Explosion protection

In areas of explosion risks caused by dust and gas, only devices with Ex-certifications are permitted to install. The MBA level switches MBA2.2 and MBA 3.2 have a certification according to ATEX 94 for zone 20 (dust) **in combination** for zone 1 (gas). These instruments can be installed in that special kind of hazardous areas.

Typical applications

Level measurement in silos and vessels with bulk material that can emit explosible gases and vapours with a typical risk to generate a hazardous explosive atmosphere. Examples: wood chips with glue or varnish, plastic chips, chemical products or sludge.

Level indicators from MBA Instruments have delivered an optimal performance in practice since the last 7 decades as full, demand and empty switches. Independent of silos size and bulk material – any time if high reliability is required, level switches from MBA Instruments are the no 1 choice.

The material of the electronic housing of MBA 2.2. and MBA 3.2 is heavy cast iron. With different types of shafts the instruments can be adapted to optimize customers application.

Dust-Ex

Hazardous atmosphere due to explosive DUST:	zone	MBA 2.2 / MBA 3.2
Continuously, long-term or frequently	20	yes (inside the silo)
Occasionally	21	yes
Infrequently or for a short period	22	yes

Gas-Ex

Hazardous atmosphere due to GASES:	zone	MBA 2.2 / MBA 3.2
Continuously, long-term or frequently	0	no
Occasionally	1	yes
Infrequently or for a short period	2	yes



MBA 2.2:
vertical mounting

① Rigid shafts: High level switch

Rigid shafts are suitable for applications where the shaft is not affected by any side load. Short shafts can also be used for lateral, angled or horizontal mounting if the shaft could not be bended by the weight of the bulk material or its movement forces.
Immersion depth:
105, 20,150,160,200,250,300...1000 mm

② Flexible shafts:

High, demand or low level switch

The flexible shaft is a rugged steel cable with 8 or 12 mm diameter. The advantage: Movement of bulk material cannot affect or bend the shaft because the

flexible steel cord draws aside. If silo is empty the flexible shaft comes back to the normal position tightened by a weight.

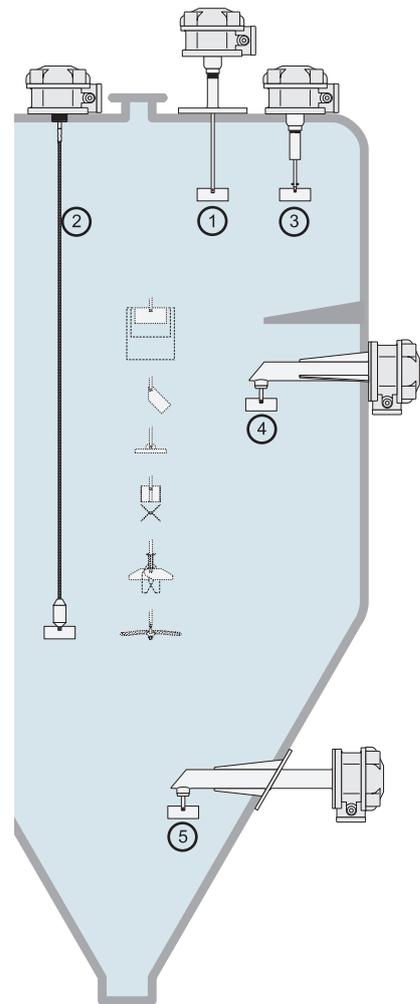
Immersion depth:
300, 400, 500 ... 15 000 mm

③ Shafts with protection tube:

High, demand or low level switch

Shafts with protection tube are used for vertical mounting. The tube protects the shaft from lateral forces and impacts of bulk material. It also protects the shaft against pulling or friction forces of the bulk material while silo is been discharged.

Immersion depth:
300, 400, 500 ... 4000 mm



Technical Data	MBA 2.2	MBA 3.2
Installation	Vertical (see silo picture pos. 1, 2, 3)	Horizontal (see silo picture pos. 4, 5)
Electronic housing	Heavy cast iron, enclosure IP 65	
Signal	1 potential-free, change-over contact 1 change-over contact for motor power	
Temperature at the electronic	-15 to +60 °C optional heating: -30 to +60 °C	
Ex-certification	II 1/ 2 D IP65 T (dust-Ex Zone 20/21) II 2G EEx de IIC/IIB T1/T2/T3 (gas-Ex Zone 1)	
Power supply	230 V, 50 / 60 Hz, 115 V, 50 / 60 Hz 24 V, 50 / 60 Hz, 24 V DC	
Motor speed	1 RPM 5 RPM for applications where quick response is essential	
Process connection	flange DN 125 PN 6, normal steel flange DN 125 PN 6, stainless steel	flange DN100 PN6/PN10/PN16 flange DN 125 PN 6, normal steel flange DN 125 PN 6, stainl. steel angled flange 65°, DN 125 PN 6
Bearing / sealing	DT stainless steel bearing with shaft sealing ring DTR stainless steel bearing with shaft sealing ring + additional PTFE sealing DHY special ceramic bearing (for temperature up to 350 °C)	
Temperature in the vessel	up to 80 °C up to 200 °C	up to 80 °C up to 200 °C up to 350 °C
Pressure in the vessel	atmosphere according to ATEX directive	
Shaft type	standard solid shaft (pos. 1) flexible shaft (pos. 2) shaft with protection tube (pos 3)	angled shaft with reinforced ribs (pos. 4 and 5)
Paddle	paddle 98x40mm, paddle 98x98mm paddle 250x100, paddle einseitig schräge folded paddle 140x35mm, toggle paddle x-shape paddle 98x40mm, rope paddle	

MBA 3.2:
Horizontal mounting, even with 65° angled flange

④ ⑤ Shaft with reinforced angled shaft as demand or low level switch

The 90 ° angled shaft is been protected by a real rugged steel tube; a reinforced tube as an option. This rugged version can also be installed in flowing product stream or as a tailback indicator.

Immersion depth:
85, 250,350,450,650 mm

