



PRODUCT INFORMATION

MBALOT 369

Continuous level measurement
of bulk material



The MBALOT 369 continuously measures the level of all bulk material and sediments in liquids.

The intelligent microprocessor electronics combined with the simple measuring principle makes the MBALOT 369 a rugged and reliable measuring system.

The MBALOT 369 is suitable for level measurement of fine and coarse grained solids as well as liquids.

The MBALOT 369 can be used in all bulk applications. Fine grained solids can be measured with the same reliability as coarse solids. Dust can not enter into the electronics due to the dust tight sealing. The lot cable is a stranded wire of stainless steel. The maximum measuring range is only depending on the cable length and can be 70 meters.

Principle

To make measurement, a sensing weight is lowered on a stainless steel cable in the vessel until it hits the surface. Then the direction of the motor changes the direction and lifts up the sensing weight until it reaches the initial position. The intelligent motor control prevents the weight to wobble or hit against beams where it could get trapped. The level is calculated out of the unwound cable length. The value is available as soon as the weight reaches the surface.

The position and movement of the sensing weight is

indicated by a row of 10 LED's. A LCD display shows the height in meter or inch. As electronic signal the MBALOT 369 has a counter and a 4 ... 20 mA with a resolution up to ± 1 mm. All configuration can be done by the keypad on the electronics, supported by the LCD menu text.

A special hover function can be activated for faster measure cycles. With this function the sensing weight will stay in a parked position one meter over the product surface. From this position the next measurement will be much faster.

If a sensing weight gets trapped or covered by the product, an intelligent release routine will automatically start to gently rescue the weight without extensively pulling on the cable.



Application

- continuous monitoring in storage bins, silos, tanks
- universal usage for fine powders up to rough bulk material
- mounting on very slim silos and narrow components possible
- no re-adjusting if bulk material changes
- reliable measurement in high dust applications
- measurement is dependent of product specific ϵ_R -value

Suitable for all bulk material, for example

Granulates, cleaning agent, wood chips, fly ash, polyester, foundry sand, salt, wood dust, gypsum, sewage sludge, powder, lime, talcum powder, pellets, charcoal, feed, ready mix foods, PVC, clay, detergent, coal, mud, barley, clinker property, coal dust, marble dust, spices, quartz powder, coffee, quartz sand, cocoa, grit, corn, stones, malt, ready-mix mortar, flour, cement, milk powder, raps, rice, rye, beans, soy beans, starch, wheat, sugar.

Product specification

- simple measuring principle – therefore rugged and reliable
- range up to 70 m
- 4 ... 20 mA output with a accuracy up to 1 mm
- flexible and non-corrosive stainless steel cable
- intelligent rescue routine if sensing weight is trapped
- LCD display for measurement and service and LEDs for trend
- AC-current motor with smooth weight lift
- weight only 18 kg
- hover mode for faster measurement sequence
- microprocessor controlled, special functions like: float mode, hover mode, reverse power, timer
- dust tight housing: IP 65 / IP 66
- product temperature up to 150 °C
- pressure up to 2 bar
- special sensing weights for different bulk materials
- keys for device configuration




Sensing weights

Different sensing weights adapted to the attributes of the bulk material

	Application	Material sensing weight	Material gravity weight
Plastic weight	standard application (up to 60 °C)	PVC	PVC
Aluminium weight	for high temperatures (up to 150 °C)	Al	Al
Stainless steel weight	for high temperatures and corrosive materials (up to 150 °C)	1.4571	1.4571
Spider weight VA	powder and steep cones, high temperature (up to 100 °C)	1.4301	PVC
Spider weight PE	powder and steep cones (up to 60 °C)	PE	PVC
Bag weight	e.g. food (up to 80 °C)	linen	PVC
Perforated weight	for sediments in liquids (up to 100 °C)	1.4571	PVC

Technical data

Measuring range:	<ul style="list-style-type: none"> up to 70 m 	Temperature:	<ul style="list-style-type: none"> process -40 °C ... +150 °C ambient -20 °C ... +60 °C
Output:	<ul style="list-style-type: none"> counter output (100 mm resolution) 4 ... 20 mA (100 mm resolution) 4 ... 20 mA (1 ... 5 mm resolution) 	Sensing weight cable:	<ul style="list-style-type: none"> stranded wire, stainless steel (1.4401) Ø 1 mm
Relay:	<ul style="list-style-type: none"> 2 potential free relays for: operating / fault signal counting pulses / reset counter 	Mechanical connection:	<ul style="list-style-type: none"> flange: DN80 ... DN100 PN10
Display:	<ul style="list-style-type: none"> LCD display for measured values and configuration LED chain for movement and position of the sensing weight 	CE-Conformity:	<ul style="list-style-type: none"> EMVG (89/336/EWG) NSR (72/23/EWG) ATEX (94/9/EG)
Configuration:	<ul style="list-style-type: none"> 6 keys clear text menu 	Dust explosion prove:	<ul style="list-style-type: none"> Ex zone 20 / 21 BVS 03 ATEX E268  II 1/2 D Ex tD A20/21 IP 65 T 100 °C
Dimensions:	<ul style="list-style-type: none"> 395 x 356 x 316 mm (h x w x d) 	Casing:	<ul style="list-style-type: none"> flange and basic casing aluminium, optional with DD-coating cover from plastic or aluminium (for Ex approval ATEX)
Weight:	<ul style="list-style-type: none"> 18 kg 	Accessories:	<ul style="list-style-type: none"> cable protection aluminium additional cover protection thermostatically controlled heating pneumatic connection
Initiation of Measurement Start:	<ul style="list-style-type: none"> manual, external integrated timer 		
Power Supply:	<ul style="list-style-type: none"> 230V, 50/60 Hz 42V, 48V, 115V, 130V, 250V, 50/60 Hz 		
Protection:	<ul style="list-style-type: none"> casing: IP 65 cable chamber: IP 66 		
Process pressure:	<ul style="list-style-type: none"> up to 2 bar (optional) 		



MaihakLOT 369

Zulassungen

- X without Ex certification
- B housing with extra DD-coating for aggressive medium
- D process pressure max. 2 bar (without Ex certification)
- Z with dust Ex certification zone 20 / 21 (ATEX)

Max. measuring range

- 2 0 ... 20 m
- 3 0 ... 30 m
- 4 0 ... 40 m
- 5 0 ... 50 m
- 7 0 ... 70 m

Output

- A counter output, 100 mm resolution
- B 0 / 4 ... 20 mA output, 100 mm resolution ¹⁾
- C 0 / 4 ... 20 mA output, 1 ... 5 mm resolution ¹⁾

Power supply

- A 230 VAC, 50/60 Hz
- B 42 V, 48 V, 115 V, 130 V, 250 VAC, 50/60 Hz

Initiation of measuring start

- M manual
- T internal timer, adjustable

Cover

- X plastic cover (not for Ex certification zone 20 / 21)
- A aluminium cover (for Ex certification zone 20 / 21)
- W plastic cover with add. protective cover (not for Ex certification zone 20 / 21)

Cable protecting tube

- X without cable protecting tube
- A with cable protecting tube, aluminium, 500 mm

Heating

- X without heating
- H with heating, recommended with ambient temperatures < 10 °C

Sensing weight

- A plastic weight, PVC
- B aluminium weight, Al
- C stainless steel weight, 1.4571
- K spider weight, VA, 1.4301
- O spider weight, PE
- E bag weight, linen
- F perforated weight, for sediments in liquids, 1.4571

Pneumatic connection

- X without pneumatic connection
- P with pneumatic connection



Model code

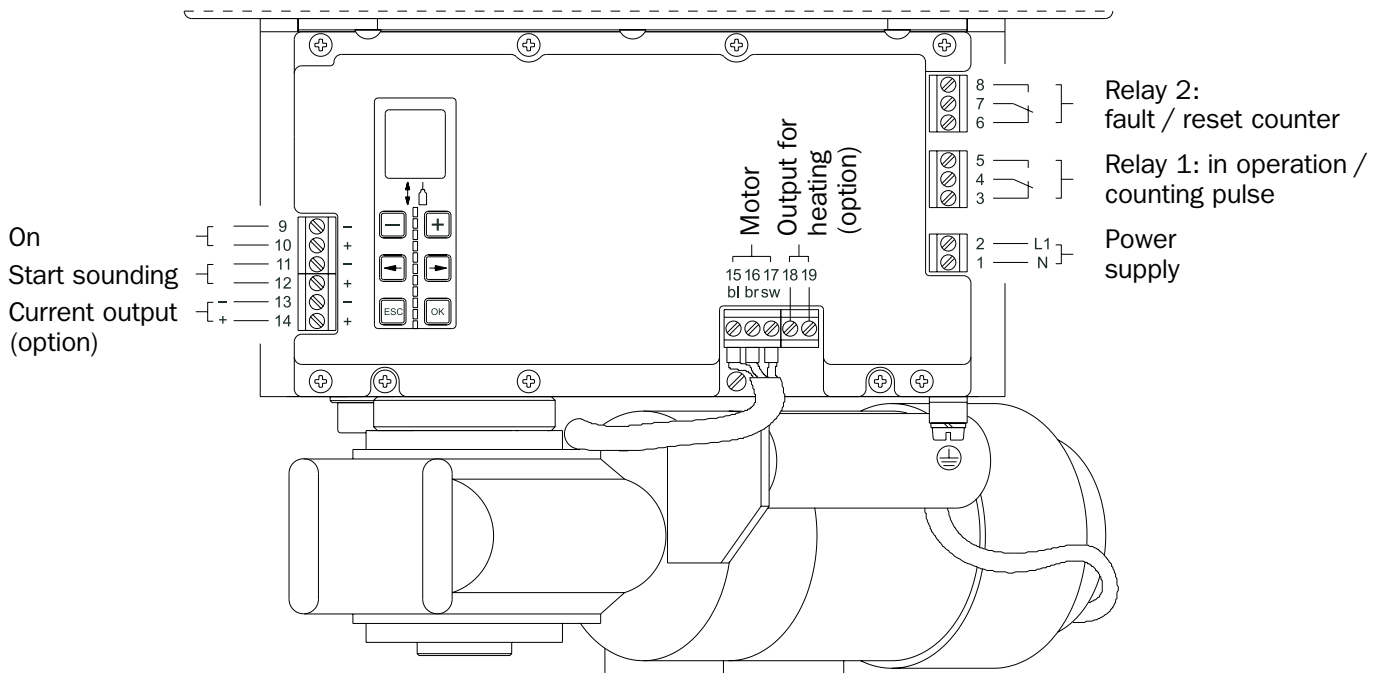
MaihakLOT 369

¹⁾ with 2 relays (changer) for "fault" and "MaihakLOT 369 operating"

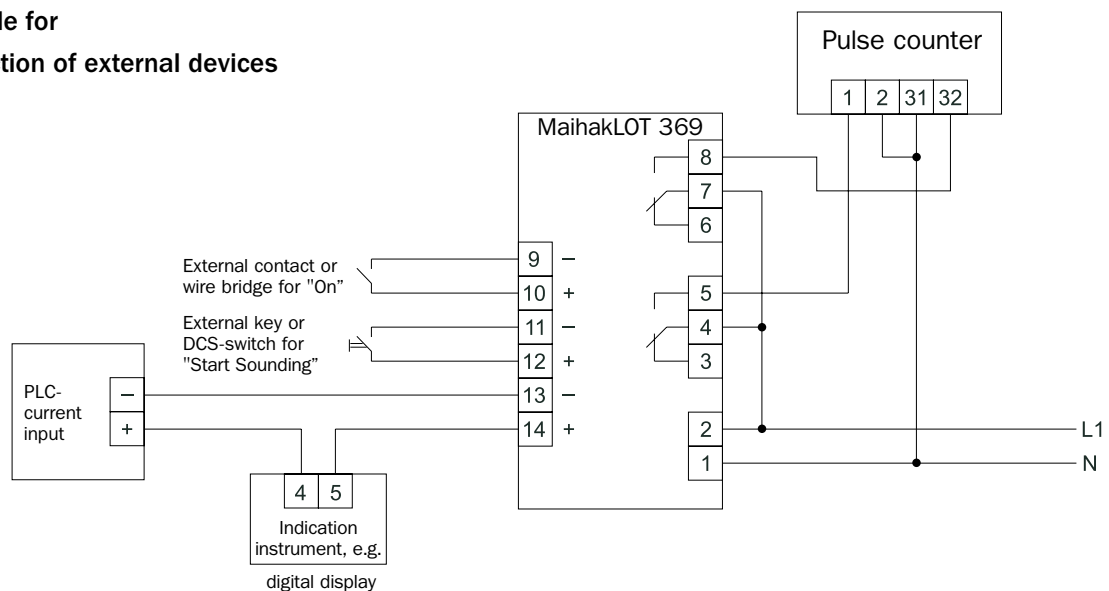
External display units

- additional digital display for indicating 4 ... 20 mA signal (for output code B and C)
- pulse counter (for output code A)

Connection plan

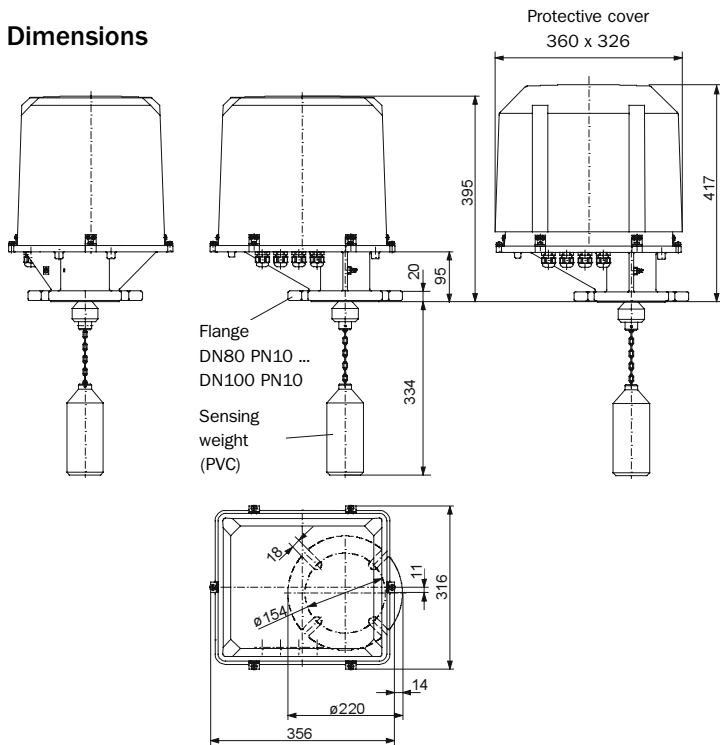


Example for connection of external devices

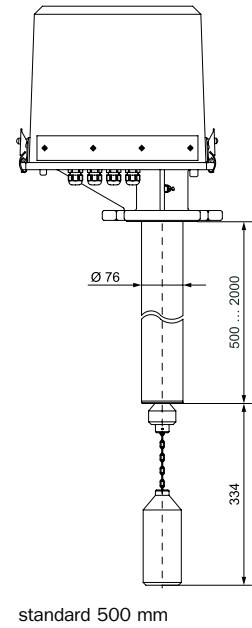


Relay switch position in currentless condition.

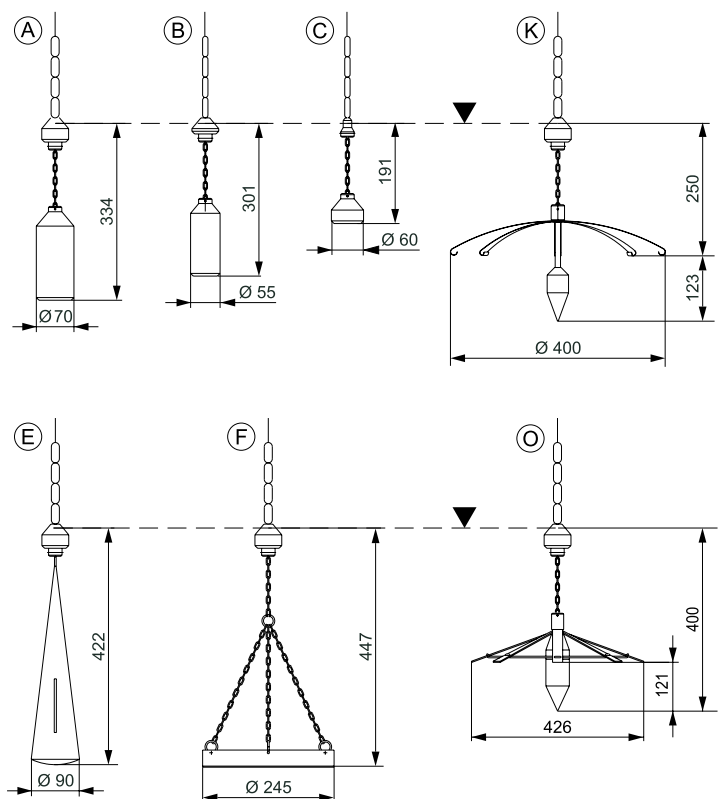
Dimensions



Cable protection tube



Sensing weight



- A Plastic weight (PVC)
- B Aluminium weight (Al)
- C Stainless steel weight (1.4571)
- K Spider weight (VA)
- E Bag weight (linen)
- F Perforated weight (VA)
- O Spider weight (PE)

▼ lower edge of flange /
lower edge of cable
protection tube

All dimensions in mm.

ANALYZERS AND PROCESS INSTRUMENTATION

AT HOME IN THE INDUSTRIAL SECTOR

We can build on years of experience in the field of Analyzers and Process Instrumentation. That is why we are at home in the world of cement and power plants as well as in the chemical and petrochemical sector. Be it emission control at the waste treatment or process optimization for steel manufacturing, MBA offers tailor-made solutions.



WE OFFER YOU A CHOICE AROUND THE WORLD TO YOUR SERVICE

MBA offers a number of sensor-based techniques for analysis, ranging from the continuous gas and dust measurement to specialized applications for water and liquid analysis. Within the process measurement technology MBA products play a central role in determining volume flow of gases and level of bulk materials.



Where ever you are, our global network of subsidiaries and representatives is able to supply qualified support when you need it. We deliver the equipment for your measuring tasks, provide documentation and training. Our highly skilled service staff offers support during installation, commissioning and maintenance of the appliances.



GROUP

MBA represents the process automation segment of the group, one of the worlds leading manufacturer of intelligent sensors and sensor solutions. With its 4,000 employees, is able to offer an extensive portfolio of products and services on the market of factory automation.

