

Effective for adhesive materials

Admittance Level Switch

Upper and Lower limit detection

Widely applicable for solid, liquid, slurry, etc.



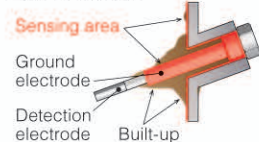
Convenient and beneficial level sw

Features

- No misdetection is caused even for highly adhesive materials including slurries, liquid or granular materials. (Special structure 1)
- The common electrical board can be applied for all applications from low sensitivity to high sensitivity. (Special structure 2)
- It is easy to adjust and has high durability due to no drive parts.

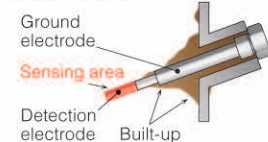
Special structure 1

Normal Capacitance Level Switch



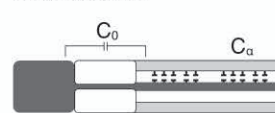
Normal Capacitance Level Switch receives a detection signal at the ground electrode. Because the tank sidewall also works as a sensing part, it is easily influenced by the adhesive materials. On the other hand, since Admittance type Level Switch receives a detection signal at the detection electrode, the adhered materials on the ground electrode or the tank sidewall do not influence the detection of the switch.

Admittance type Level Switch

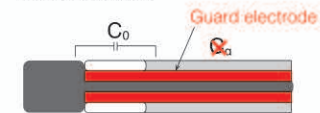


Special structure 2

Electrodes structure of normal Capacitance Level Switch



Electrodes structure of Admittance type Level Switch

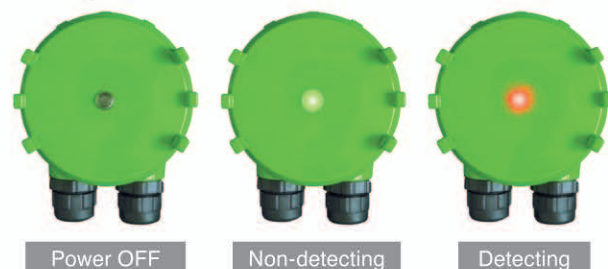


Each Capacitance Level Switch basically contains an inherent capacitance value inside the electrode. The length of electrode is positively correlated with this inherent capacitance value. If the ground electrode is longer, it is necessary to apply a different electrical board to compensate higher inherent capacitance. For Admittance type Level Switch, only one electrical board can be applied to all models due to the guard electrode eliminating any influence from the probe length.

Extra 6 conveniences

Extra 1 LED detection indicator by 2 colors

Clear indicator of current condition even though the cover is closed. Regardless of detecting condition, the power supply condition can be easily confirmed because the LED is lit all the time.



Extra 2 Screw-up type terminal block

The screws are not fallen off or not lost due to screw-up type terminal block. Also, wiring work must be significantly shortened because the wiring can be connected without removing terminal screws.



Extra 3 Rotation function of the housing

The housing can be rotated in a range of approx. 310 degrees. After installation, the direction of the lead outlet is easily adjustable.



Extra 4 Detection mode switch

"H" / "L" setting can be selected according to the application.

Level condition	H Mode (Upper detection)			L Mode (Lower detection)		
	LED light	Contact		LED light	Contact	
	GREEN	3	4	5	RED	3 4 5
	RED	3	4	5	GREEN	3 4 5
Power OFF	CLEAR	3	4	5	CLEAR	3 4 5

Extra 5 AC/DC power supply available

AD/DC22-264V It is available to use in many countries and regions in the world.


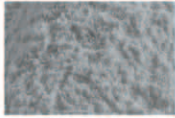



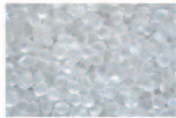
Extra 6 Max. temperature 150°C. for standard model

It is available at up to 150 °C. temperature of the detected materials.





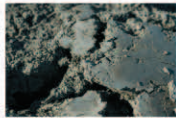

Switch, less influenced by adhesion!!

Applications

CASE 1 *Low dielectric constant materials (criteria: 2.0 or more)*

		
Flour, bran	Fly ash	Lime powder
		
Cement	Talc	Resin pellet

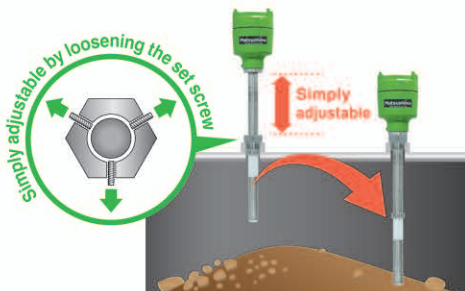
CASE 2 *Highly adhesive materials*

		
Granulated sugar	Fine powdered coal, coke	Chocolate
		
Oils and fats	Dehydrated cake	Black liquor

L-dimension adjustable (MAL-111)

L-dimension adjustable model is convenient for applications requiring detecting point change due to the influence from the angle of repose of materials or etc.

L-dimension change is easily possible by loosening the set screw.

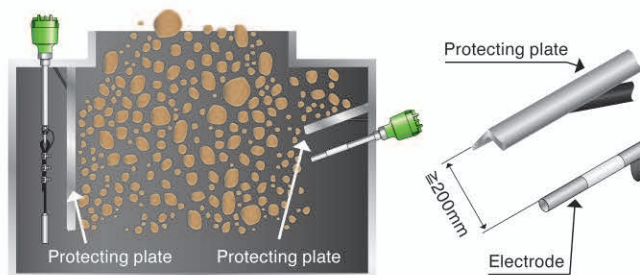


Precautions for installation

Protection of electrode

Please apply a protecting plate to avoid the direct material impact to the electrode.

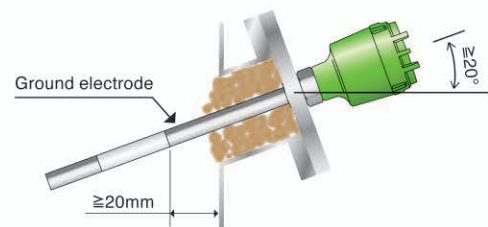
* Keep a distance of over 200mm between the electrode and the protecting plate.



L-length and mounting angle

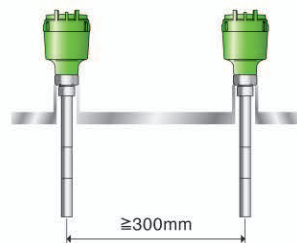
Please mount the electrode so as to be inserted over 20mm from the tank sidewall.

For horizontal mounting, please mount the switch inclining over approx. 20 degrees.



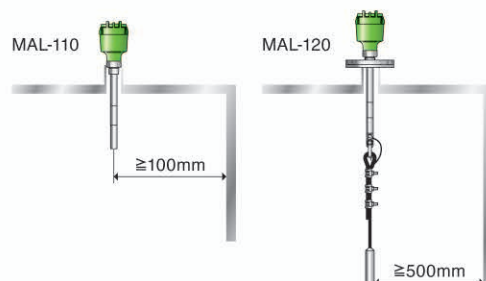
In case of mounting plural switches

Please keep a distance of over 300mm between each switch if two or more switches are mounted.



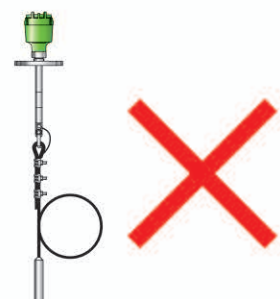
Mounting distance from the tank wall

MAL-110: over 100mm from the tank wall
MAL-120: whichever is longer, over 500mm from the tank wall, or quarter of diameter of the silo



Do not roll wire rope

It may cause material adhesion and misdetection by contacting with the sidewall.



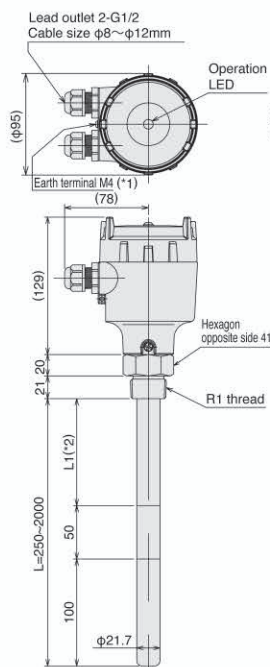
Standard Specification

Type	MAL-110		MAL-111	MAL-120
Product Type	Rod		Rod (L dimension variable type)	Wire
Power supply / Power consumption	AC/DC22~264V 50/60Hz / 4.7W (AC), 1.8W (DC)			
Mounting	R1 thread			JIS5K65A Flange
L-Length	250mm~2000mm	300mm~1000mm		700mm~6000mm
Detection range (Sensitivity can be switched by slide switch)	Range1 : 0~10pF Range3 : 0~100pF		Range2 : 0~50pF Range4 : Special material (*1)	
Signal output	SPDTx1 (Contact capacity : AC250V, 5A / DC30V, 5A)			
Operation LED	Undetected(Green), Detected(Red)			
Material	Housing : ADC12 Ground electrode : SUS304 Detection electrode : SUS304		Boss : SUS304L(MAL-110, 120), SUS304(MAL-111) Insulator : PTFE Wire rope : SUS304 (MAL-120)	
Lateral load	Max.500N			—
Teansverse load	—			Max.4500N
Permissible pressure	Max.1.5MPa			Max.0.5MPa
Permissible ambient temperature	Housing	-20°C ~ +60°C (No freezing)		
	Electrode	-40°C ~ +150°C (No freezing)		
Protection	IP67 (Cover, cable entrance tightened condition)			
Quantity	Approx.2.0kg (L=250mm)		Approx.2.1kg (L=300mm)	Approx.4.6kg (L=700mm)

(*1) Use RANGE 4 if the measured material has a lot of moisture, high conductivity or cannot adjust by RANGE 1~3.

Dimension (mm)

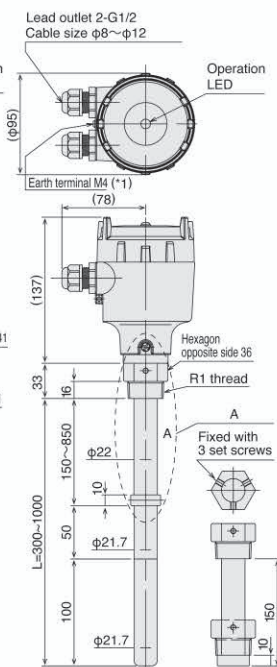
MAL-110



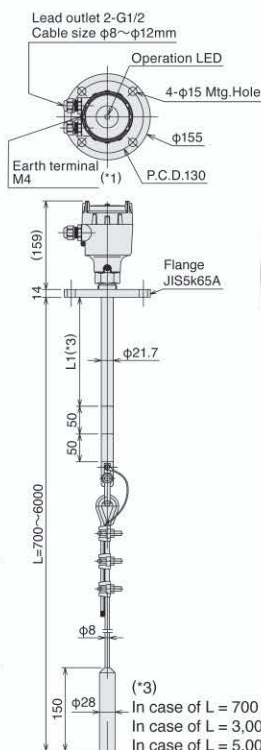
(*1) Please insure connection to earth.

(*2) L dimension is described in specification.

MAL-111

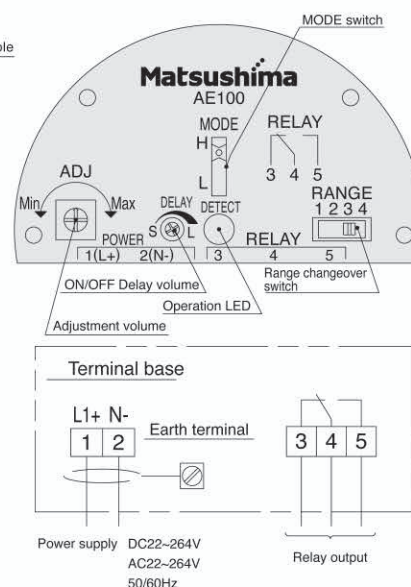


MAL-120



(*3)
In case of L = 700 to 3,000mm, L1 = 200mm
In case of L = 3,001 to 5,000mm, L1 = 600mm
In case of L = 5,001 to 6,000mm, L1 = 1,000mm

Panel part



Caution
•Read the instructions to ensure correct and suitable application of products.
•Contact our nearest sales office when using our products for any systems used in situations which may be life threatening.

Specifications are subject to change without notice.

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HEAD OFFICE

1-8-18, NORIMATSU-HIGASHI, YAHATANISHI-KU, KITAKYUSHU, 807-0837 JAPAN
Tel: +81-93-691-3731 FAX: +81-93-691-3735
https://www.matsushima-m-tech.com E-mail: info@matsushima-m-tech.com

Seoul Branch

220, 2F Hyundai Knowledge Industry Center, 70, Dusan-ro, Geumcheon-gu, Seoul, Republic of Korea
Tel: +82-(0)2-852-3731 FAX: +82-(0)2-852-3734

Affiliated company

Shanghai Dahong Matsushima Machinery Co., Ltd.
70 Hengchang Road, Dahong, Malu, Jiading, Shanghai 201818, China
Tel: +86-(0)21-5951-4138 FAX: +86-(0)21-5951-4139