

## MS61A-RA

RoHS

### Small-size fine differential pressure switch

- Small-size/lightweight type that can be installed anywhere you like
- The operating pressure can be set only by adjusting the scale knob with one action.
- Unique mechanism less subject to abnormal high pressure inrush
- High-performance silicone rubber diaphragm with small hysteresis



**MS61A-RA**  
With built-in lead switch  
(single-pole normally open sealed type)

\*Model MS61A-RA, which came to be resold in September 2019, is not compliant with the UL standard.

#### <Main application fields>

- Part of semiconductor manufacturing equipment
- Negative pressure for dust collector/differential pressure of air conditioner
- Filter pressure loss management
- Precision machine manufacturing line
- General factory management equipment

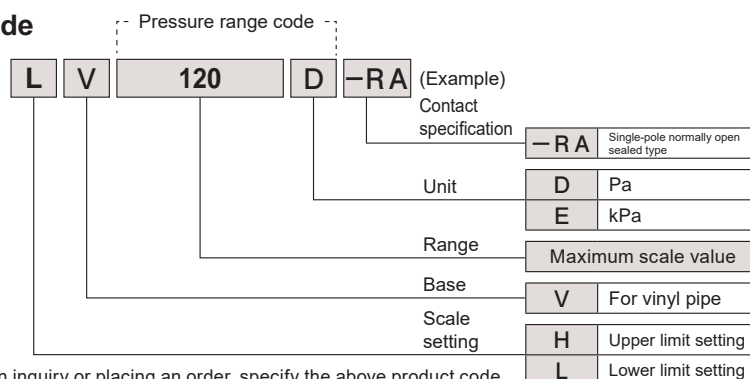
#### <Usage>

- Measurement of internal pressure of indoor device
- Detection of clogging of air filter
- Measurement of clogging of bug filter
- Measurement of dynamic pressure at ventilation/exhaust device
- Room pressure measurement in a clean room

\*(Refer to pages 114 to 117)

#### Product code

MS61A



◆When making an inquiry or placing an order, specify the above product code.

List of products

WO81

WO71

FR51A

MS99

MS99S

MS61A-RA

QDP33

EMD8A

EMD7

EMT1

EMTGP1

EMT1H

EMT6

EMP5A

EMRT1

HWS15A

Accessories

Application

Precautions

Maintenance

### Specifications


Model	Instrument for upper limit setting		Instrument for lower limit setting	
	MS61AHV		MS61ALV	
Pressure unit	Pa, kPa	Durable vibration Durable impact Insulation resistance Withstand voltage Compatible pipe Terminal screw size Base polarity Mass Mounting screw size	5 to 10 Hz, amplitude of 10 mm, 10 to 50 Hz, acceleration of 39 m/s <sup>2</sup> (two hours each for three axial directions) 100 m/s <sup>2</sup> (six times each for three axial directions) Between terminal and case 20 MΩ or higher (500 V DC megger) Between terminal and case 500 V AC 50/60 Hz for one minute Vinyl pipe or rubber pipe (inner diameter of 4 mm) M3.5 outer diameter of φ8 or below Indicating high-pressure side and low-pressure side with "H" and "L" marks, respectively, at the piping connection base part. Approx. 140 g M4	
Pressure measurement method	Differential pressure method			
Pressure-receiving element	Diaphragm (silicone rubber)			
Measured gas	Air and noncorrosive gas (liquid cannot be measured)			
Pressure setting method	Setting by knob with scale			
Standard mounting orientation	Mounted at arbitrary angle between horizontal and upright			
Operating ambient temperature	-10°C to +50°C (no freezing allowed)			
Operating ambient humidity	90% RH or below (no condensation allowed)			
Instrument body withstanding pressure	100 kPa (refer to page 118)			
Withstanding pressure of pressure-receiving element	20 kPa (refer to page 118)			
Exterior material	Polyamide			
Pressure range code	Pressure range	Scale setting accuracy (at 20°C)	Maximum operating pressure difference	
120 D*	20–120 Pa	±5.0 Pa	37.5 Pa	
300 D	50–300 Pa	±15 Pa	60 Pa	
600 D	100–600 Pa	±25 Pa	120 Pa	
1.2 E	0.2–1.2 kPa	±0.050 kPa	0.240 kPa	
3 E	0.5–3 kPa	±0.15 kPa	0.60 kPa	
6 E	1–6 kPa	±0.30 kPa	1.20 kPa	

\*Instrument for upper limit setting cannot be manufactured.

- ◆ If you desire to procure a model with a mounting orientation other than above, such as downward and horizontal mounting and mounting orientation 135°, let us know in advance because adjustment needs to be made before shipment from the factory.
- ◆ For use environment, refer to page 118.

### Opening/closing capability

Contact type	Specifications	Rating	Opening/closing voltage	Opening/closing current	Opening/closing power
Single-pole normally open sealed type	Contact configuration: SPST (Single Pole Single Throw) N.O. Electric service life: 100,000 times or more Contact structure: Lead switch	0.1 A–30 V DC	100 V DC (maximum)	0.25 A DC (maximum)	10 W DC (maximum)

 The product may malfunction from the influence of the external magnetic field. Install the product at a sufficient distance from the circuit with high voltage and large current, apply a magnetism shield as necessary, and use the product after sufficiently checking its operation.

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Accessories

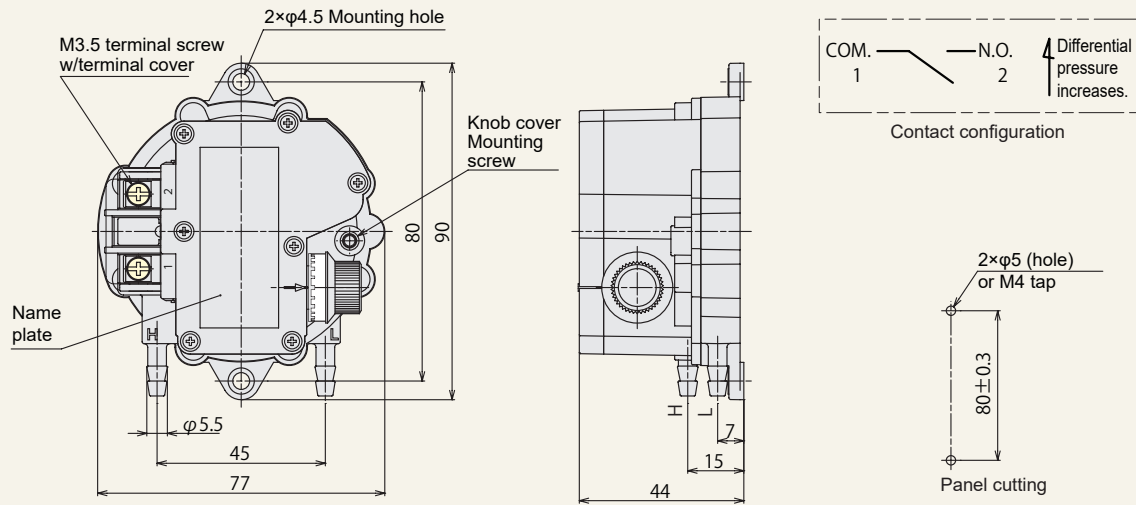
Application

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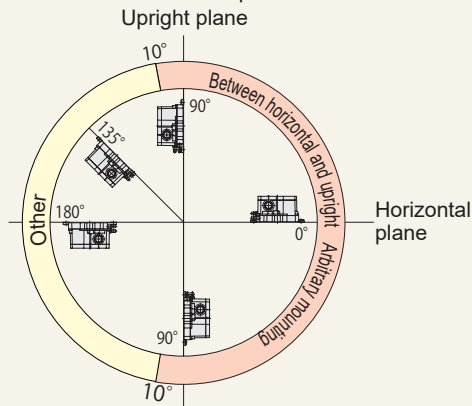
### External dimension drawing

MS61A-RA w/built-in lead switch (single-pole normally open sealed type)

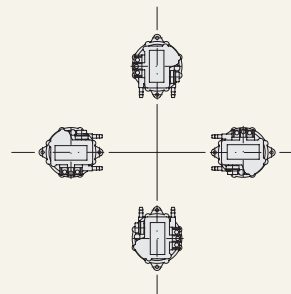


### Mounting orientation and range

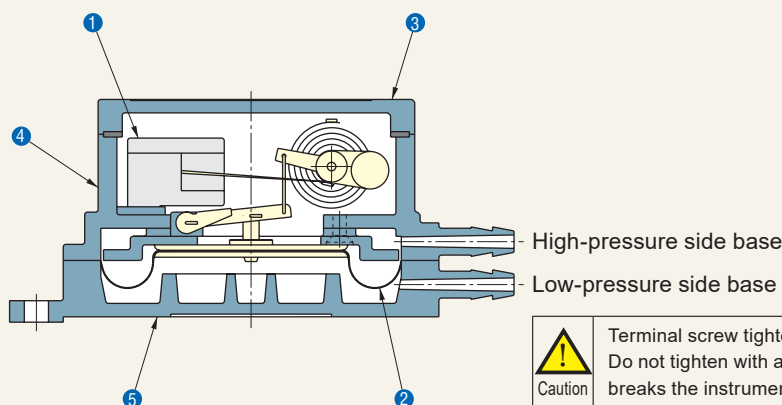
The switch can be mounted at arbitrary angle between horizontal and upright. For other mounting orientations, it is necessary to specify the orientation at the time of order placement.



The instrument can be mounted on the mounting panel in an arbitrary manner.



### Overview of structure



Number	Name
1	Microswitch
2	Diaphragm
3	Cover
4	Housing
5	Base





Caution

Terminal screw tightening torque: 0.7 to 1.0 N·m  
Do not tighten with a greater force than necessary because doing so breaks the instrument body.

### Accessories dedicated to MS61A

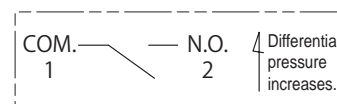
RoHS

Knob cover set					
 <p>This is to protect the scale knob for setting use from inadvertent turning after setting.</p> <table border="1"> <thead> <tr> <th>Item number</th> <th>Material</th> </tr> </thead> <tbody> <tr> <td>TCVRA-61</td> <td>Brass/steel</td> </tr> </tbody> </table>		Item number	Material	TCVRA-61	Brass/steel
Item number	Material				
TCVRA-61	Brass/steel				

Terminal cover					
 <p>(Auxiliary item)</p> <table border="1"> <thead> <tr> <th>Item number</th> <th>Material</th> </tr> </thead> <tbody> <tr> <td>TCA-61A</td> <td>Polycarbonate</td> </tr> </tbody> </table>		Item number	Material	TCA-61A	Polycarbonate
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TCA-61A	Polycarbonate				

### Configuration of switch contact

- The contact configuration of this instrument is as shown on the right.
- When no differential pressure (pressure) is applied to the instrument, the section between COM. (1) and N.O. (2) is open.
- When the differential pressure increases and reaches the set pressure, the contact is switched and the section between COM. (1) and N.O. (2) turns to be closed.



### Upper limit setting and lower limit setting

The pressure at which the electric contact of the switch is triggered as the differential pressure (pressure) applied to the instrument has increased from zero is referred to as the set pressure.

Then, the pressure at which the contact has returned to the former state as the differential pressure has decreased from the use condition at a pressure greater than the set pressure, and the electric contact has been triggered is referred to as the reset pressure.

The set pressure and reset pressure mentioned above are not the same values, but are slightly different from each other. This difference is referred to as the operating pressure difference (dead band).

This instrument has two variations: one with the scale of setting dial set to the set pressure; and the other with the scale set to the reset pressure.

This instrument with the scale set to the set pressure is referred to as the instrument for upper limit setting, and the instrument with the scale set to the reset pressure is referred to as the instrument for lower limit setting.

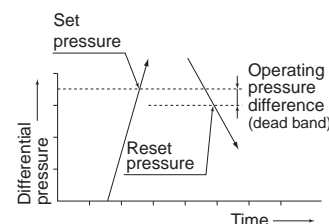


Figure for explanation of operating pressure difference

When the setting pressure is set to 100 Pa in the pressure range of 50 to 300 Pa for example (operating pressure difference is assumed to be 60 Pa)

Scale setting	Setting dial scale adjustment	Contact action
<b>Instrument for upper limit setting</b>	Adjustment is made by means of set pressure.	When the differential pressure increases, the section between N.O. (2) and COM. (1) closes at 100 Pa. Then, when the differential pressure decreases, the section between N.O. (2) and COM. (1) opens at 40 Pa.
<b>Instrument for lower limit setting</b>	Adjustment is made by means of reset pressure.	When the differential pressure increases, the section between N.O. (2) and COM. (1) closes at 160 Pa. Then, when the differential pressure decreases, the section between N.O. (2) and COM. (1) opens at 100 Pa.



Caution

It is not possible to change from the upper limit setting to the lower limit setting and vice versa.

## Warranty

### Warranty period

The warranty period for our product is one (1) year from delivery to the location specified by the orderer who makes a direct transaction with us.

### Scope of warranty

If any failure or defect attributable to us becomes clear during the above warranty period, we will repair the product or supply a substitute product free of charge. However, even during the warranty period, we will exclude the product from the scope of the warranty if the failure or defect corresponds to any of the following:

- (1) The failure or defect was caused by an unreasonable condition, environment, handling, or usage not mentioned in the instruction manual, specifications, and our product catalog.
- (2) The failure or defect was caused by a factor other than our product.
- (3) The failure or defect was caused by a modification or repair conducted by a party other than us.
- (4) The failure or defect was caused by an event that could not be foreseen at the scientific and technical levels at the time of product shipment from us.
- (5) The failure or defect was caused by an external factor not attributable to us, such as acts of God and disasters.

Please note that the warranty mentioned here means the warranty for our individual product, and damage provoked by a failure or defect of the product is excluded from the scope of the warranty.

\*This warranty is valid only in Japan.

## Application and usage

Our products are designed and manufactured as general-purpose instruments for general industries.

Therefore, our products are not intended for the following uses, and our products used in such a manner are outside the scope of application.

- (1) Equipment that is anticipated to greatly affect lives and properties, such as nuclear power generation, aviation, railways, marine vessels, vehicles, and medical devices
- (2) Utilities that include electricity, gas, and service water
- (3) Use in outdoor locations and under similar conditions or environments other than those stipulated in the instruction manual
- (4) Usage to which considerable safety consideration and attention equivalent to (1) and (2) above need to be given

## Service

### Scope of service

Because the product price does not include service expenses, such as the dispatch of engineers, we will separately charge for the expenses in the following cases:

- (1) Instruction for installation and adjustment and a witnessed test run
- (2) Maintenance inspection, adjustments, and repairs
- (3) Technical guidance and technical education
- (4) Witnessed inspections of products at our factory

<<Note>> The product specifications and information in this catalog are subject to change without prior notice for product improvement or other reasons.

● For order placement, contact

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Manufacturer  **Yamamoto Electric Works Co., Ltd.**

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