CL13 Differential Pressure Switch

Overview

This differential pressure switch is desinged for detecting air filter pressure drop used in an air-conditioning system and warning for filter clogging, etc. Applications include clean room/bioclean room pressure monitoring.

Features

- **This high sensitive and reliable pressure switch utilizes diaphragm made of silicone rubber improving its proof pressure.**
- **Easy adjustment of setpoit is possible by dial setting.**
- **Dial lock function can eliminate shift of set point due to vibration etc.**
- **Adopted high reliable and high capacity microswitch improve setting accuarcy.**
- **Small and lightweight**

RoHS

Specifications 1

Media:
Air or non-corrosive gas

Installation Environment:
Install in location where no gases or liquids may exist that have the potential to become flammable or ignitable under normal operating condition

Mounting Orientations:
Horizontal mounting, vertical mounting
＊Rated differential ranges 0.5kPa and below exhibit position effects. Make sure to specify position orientation when ordering.
＊Installation in outer case optionally available upon request.

Pressure Connection:
ϕ5.5 Barb fitting (For tubing with ϕ4 inner diameter vinyl tube)

Wetted parts:
Diaphragm: Silicon rubber
Case: PBT
Inlet: C3604BD
Rest: Phosphor bronze, brass, NBR, and phenol resin

Differential pressure range:
5 to 70Pa → 6 to 30kPa

Proof pressure for enclosure (Pressure loaded two sides):
200kPa and below

Proof pressure for sensing element＊ (Pressure loaded one side)
30kPa (6 to 30kPa : 40kPa)
＊Same proof pressure applied for negative pressure measurements (Vaccumed at L pressure side)

Operating temperature range:
-20 to 60℃ (Non-freezing)

Setting accuracy:
Within ±5% max.P.

Repeatability:
Within ±5% max.P.

Deadband:
Fixed 15Pa to 7kPa and below (Depending on differential pressure range)

Switch:
Micro switch
Standard or micro load (Gold clad contact)

Number of contact:
One contact

Setting method:
Externally adjustable with dial lock function

Case material and finish:
Plastic black

Weight:
Approx. 240g

＊Proof pressure loaded two sides simultaneously, and proof pressure loaded one side that represents maximum alloable differential pressure are specified.

Specifications 2

Deadband:

Differential pressure range	Deadband (Maximum)	Setpoint range	
		Upper limit type	Lower limit type
5 to 70Pa	15Pa and below	20 to 70Pa	5 to 55Pa
20 to 100Pa	20Pa and below	30 to 100Pa	20 to 80Pa
40 to 200Pa	40Pa and below	60 to 200Pa	40 to 160Pa
60 to 300Pa	60Pa and below	90 to 300Pa	60 to 240Pa
100 to 500Pa	100Pa and below	150 to 500Pa	100 to 400Pa
0.2 to 1kPa	0.2kPa and below	0.3 to 1kPa	0.2 to 0.8kPa
0.4 to 2kPa	0.4kPa and below	0.6 to 2kPa	0.4 to 1.6kPa
0.6 to 3kPa	0.6kPa and below	0.9 to 3kPa	0.6 to 2.4kPa
1 to 5kPa	1 kPa and below	1.5 to 5kPa	1 to 4kPa
2 to 10kPa	2 kPa and below	3 to 10kPa	2 to 8kPa
6 to 30kPa	7 kPa and below	9 to 30kPa	6 to 24kPa

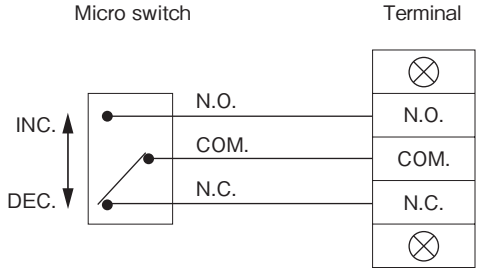
Electrical characteristics:

Rating						Withstand voltage	Insulation resistance
	Standard		Micro load				
	Resistance load	Inductive load	Resistance load	Inductive load	Minimum applicable load		
125V AC	3A	2A	0.1A	—	6V DC 5mA	1500V AC Between terminal and case 50/60Hz 1min.	500V DC 100MΩ and over Between terminal and case
250V AC	3A	2A	—				
30V DC	3A	2A	0.1A				
125V DC	0.4A	0.05A	—				
·Inductive load: Power factor 0.6 to 0.7(AC) Time constant 7ms or less (DC)			———				

*Switch rating of micro swithc has been changed since the production in June 2018

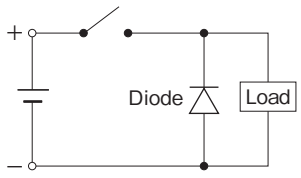
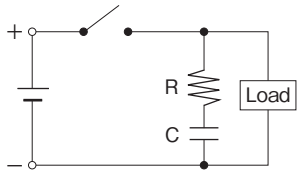
Switching function and wiring

Type of contact	Marking	Diagram of setpoint operation
Upper limit type with one contact	H	Pressure switch is adjusted to actuate at setpoint on rising differential pressure. Pressure increase→ OFF | ON 0 SET max.
Lower limit type with one contact	L	Pressure switch is adjusted to actuate at setpoint on falling differential pressure. ←Pressure decrease ON | OFF 0 SET max.



Insertion of protection circuit for contact:

Ensure the insertion of protective circuit for opening/closing inductive load. Built-in protective circuti should be selected when employing relay.

	Select diode to withstand the reverse voltage sufficiently.
	R: Tens 10 ohms C: 0.1 to 0.2μF

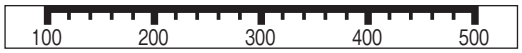
Scale Interval

Differential pressure range	Minor graduation
5 to 70Pa	5Pa

Differential pressure range	Minor graduation
20 to 100Pa	5Pa

Differential pressure range	Minor graduation
40 to 200Pa	10Pa

Differential pressure range	Minor graduation
60 to 300Pa	10Pa



Differential pressure range	Minor graduation
100 to 500Pa	20Pa

Differential pressure range	Minor graduation
0.2 to 1kPa	0.05kPa

Differential pressure range	Minor graduation
0.4 to 2kPa	0.1kPa

Differential pressure range	Minor graduation
0.6 to 3kPa	0.1kPa

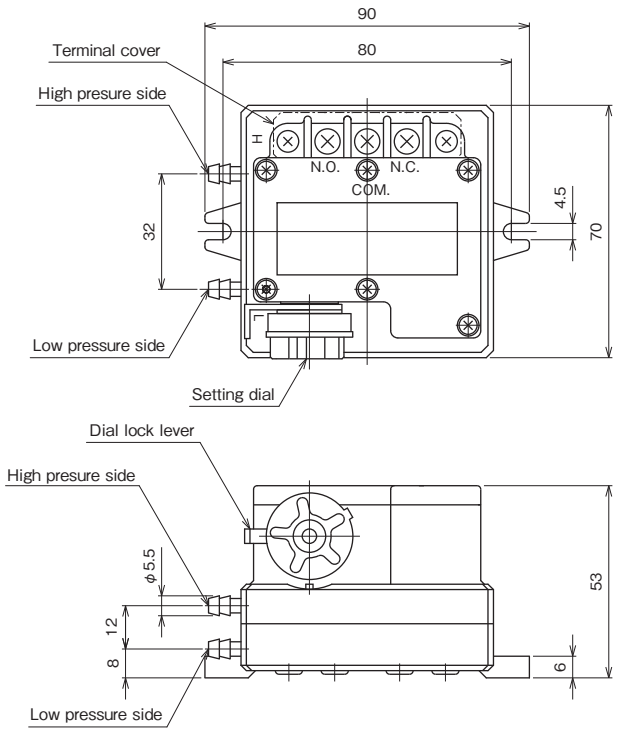
Differential pressure range	Minor graduation
1 to 5kPa	0.2kPa

Differential pressure range	Minor graduation
2 to 10kPa	0.5kPa

Differential pressure range	Minor graduation
6 to 30kPa	1kPa

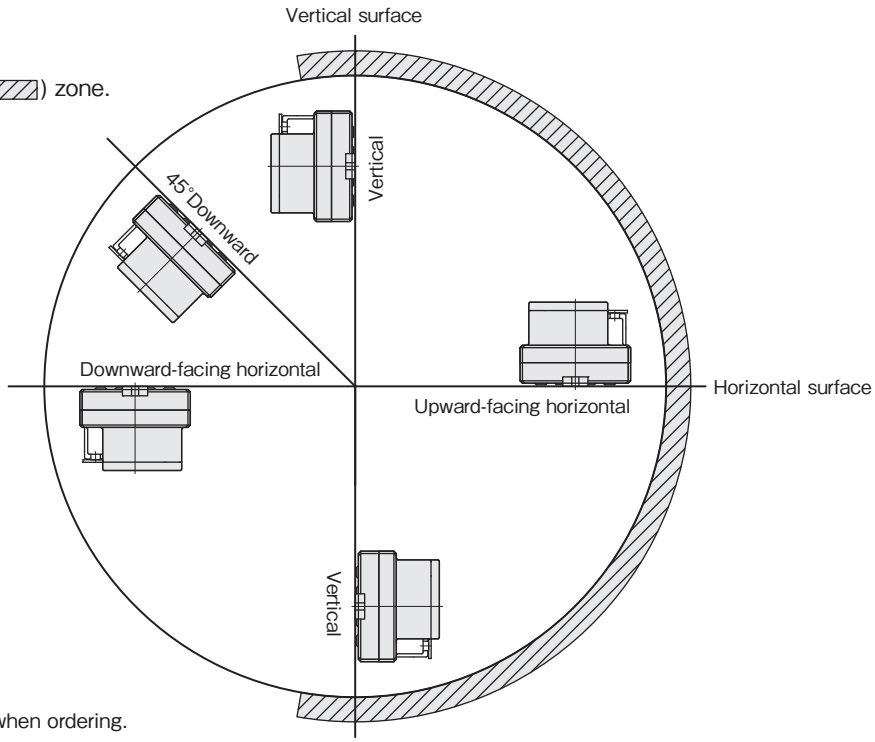
Dimensions

Unit: mm



Position Orientations

No need to specify tilt angle for use in (▨) zone.



Consult factory for other position orientations when ordering.

Model number configuration

Please specify the model, each requiring specification and differential pressure range to order.

Model

C	L	1	3	—	2	9	1	—														
Differential pressure switch					①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮		
Model number									Product specifications						Additional specifications (Optional)							

① Mounting	2	Screw mounting
② Pressure Connection	9	ϕ5.5 Barb fitting
③ Wetted parts	1	Diaphragm: Silicone rubber Case: PBT Inlet: C3604BD Miscellaneous: Phosphor bronze, brass, NBR, phenol resin
④ Differential pressure range	1	20 to 100Pa, 40 to 200Pa, 60 to 300Pa
	2	100 to 500Pa, 0.2 to 1kPa, 0.4 to 2kPa, 0.6 to 3kPa, 1 to 5kPa
	3	2 to 10kPa, 6 to 30kPa
	4	5 to 70Pa
⑤ Switch Action	A	H: Upper limit type with one contact
	B	L: Lower limit type with one contact
		Others
⑥ Switch	0	Standard (Micro switch)
	1	Micro load (Gold clad contact)

Please specify differential pressure range and unit of measure along with corresponding ordering code.

⑨ Other additional spec.	0	Not required
	1	Required (Documents available upon request) Accessaries Two pitot tubes Polyvinyl chloride tube 2m
⑮ Documents	0	Not required
	1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Inspection procedure Mill test report Calibration test report (One-part one sheet) Inspection / Traceability certificate Attending inspection

- Proof pressure for enclosure (Pressure loaded two sides): 200kPa and below
- Setting method: External adjustment with dial lock function
- Position Orientations: Horizontal mounting, vertical mounting
  Rated differential ranges 0.5kPa and below exhibit position effects.
  Make sure to specify position orientation when ordering.

○ As setting scale on dial includes setting error, ensure the use of master gauge and reference pressure gauge to maintain accurate setting.

＊Specify code "X" to refer N/A