

## CL71 Differential Pressure Switch CD71 Explosion-Protected Construction Differential Pressure Switch

### OUTLINE

This is a high-pressure withstanding, low differential-pressure switch used for liquid level alarms in sealed tanks, and for checking clogging of pipeline strainers. Its volume is much more compact than conventional models.

### FEATURES

- The high pressure resistance, 8 MPa (80kgf / cm<sup>2</sup>), is possible due to special pressure sensing portion construction.
- Since operation is from the front and setting is done by multiple rotation, accurate setting is possible.
- Acid-proof coating prevents rusting from salt damage.

\* When selecting a differential pressure switch, select it in such a way that the working pressure is within 30 to 65% of the differential pressure range. At the same time, please pay attention whether wetted parts materials are suitable for gas to be measured or not.

## SPECIFICATION

### Model :

- CL71 General process use  
CD71 Explosion-protected construction (Exd II B+H<sub>2</sub> T4)

### Fluid :

Gas or liquid

### Operating condition :

#### CL71

Under the normal condition, where there is no inflammable gas or liquid which cause the ignition or explosion.

#### CD71

Hazardous area The details refer to explanation column of explosion-protected construction.

### Mounting :

Panel mounting, 2B pipe mounting

### Connection :

Rc 1/4 (PT female)

※ For other connections, please contact us.

### Wetted parts material :

Diaphragm 316st.st.+NBR (Buna-N)  
O ring NBR  
Body SCS14  
Spring 304st.st.

### Differential pressure range :

0.005~0.025→0.2~1MPa (0.05~0.25→2~10kgf/cm<sup>2</sup>)  
0~0.025MPa、0~0.05MPa  
(0~0.25kgf/cm<sup>2</sup>、0~0.5kgf/cm<sup>2</sup>)

### Operating differential pressure range :

1MPa (10kgf/cm<sup>2</sup>)

### Base pressure :

8MPa (80kgf/cm<sup>2</sup>)

### One side proof pressure :

8MPa (80kgf/cm<sup>2</sup>)

### Operating temperature :

CL71 -20~60°C (Fluid : -20~80°C)

CD71 -5~40°C (Fluid : -20~80°C)

### Accuracy :

1.5%max.P.

### Dead band :

0.0035~0.08MPa or less (0.035~0.8kgf/cm<sup>2</sup> or less)

(Depending on differential pressure range and number of contact)

### Switch :

Micro switch

### Number of contact :

One contact or two contact

### Setting system :

Internal adjustment type

### Outlet for electric wire :

CL71 Conduit type PF3/4 female

Gland JIS 20b

CD71 Flame-proof packing type

### Case material · finishing :

Aluminium alloy casting (AC7A) or Aluminium alloy die casting (ADC12) · Blue & Gray Epoxy painted

### Construction :

IP65

### Weight :

CL71 Approx. 5kgs

CD71 Approx. 9kgs

## SPECIFICATION 2

### Electric characteristics :

Rating					Withstand voltage	Insulation resistance
	Load resistance		Inductive load			
	One contact	Two contact	One contact	Two contact		
125V AC	15A	5A	15A	3A	1500V AC  Between terminal and case 1 minute	500V DC 100MΩ over  Between terminal and case
250V AC	15A	5A	15A	3A		
125V DC	0.5A	0.4A	0.05A	0.05A		
30V DC	2A	5A	1A	3A		
• Inductive load : Power factor 0.4 over (AC) Time-constant 7ms or less (DC)						

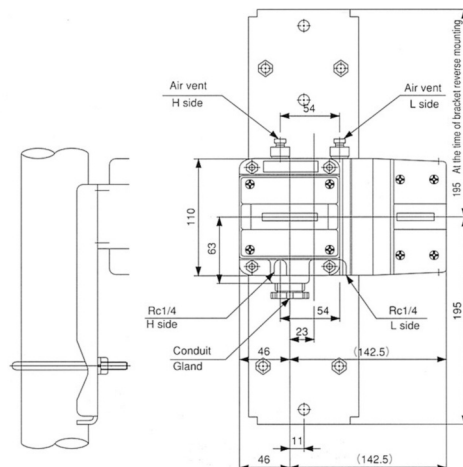
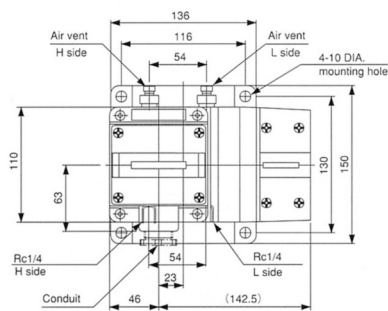
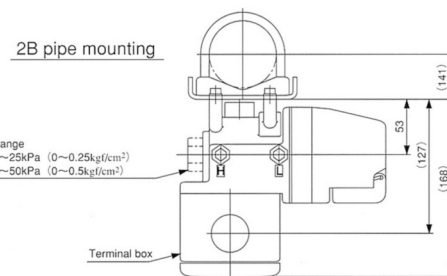
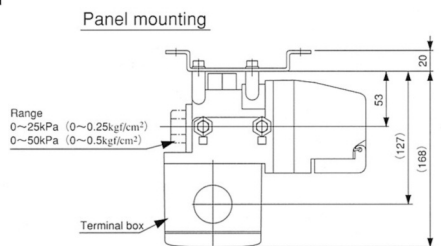
### Differential pressure range and dead band :

Differential pressure range kPa (kgf/cm <sup>2</sup> )	Dead band MPa (kgf/cm <sup>2</sup> )	
	One contact	Two contact
*0~0.025 (0~0.25)	0.004 or less (0.04 or less)	0.006 or less (0.06 or less)
*0~0.05 (0~0.5)	0.006 or less (0.06 or less)	0.009 or less (0.09 or less)
0.005~0.025 (0.05~0.25)	0.0035 or less (0.035 or less)	0.0055 or less (0.055 or less)
0.01~0.05 (0.1~0.5)	0.005 or less (0.05 or less)	0.008 or less (0.08 or less)
0.02~0.1 (0.2~1)	0.007 or less (0.07 or less)	0.012 or less (0.12 or less)
0.04~0.2 (0.4~2)	0.014 or less (0.14 or less)	0.024 or less (0.24 or less)
0.06~0.3 (0.6~3)	0.018 or less (0.18 or less)	0.03 or less (0.3 or less)
0.08~0.4 (0.8~4)	0.02 or less (0.2 or less)	0.032 or less (0.32 or less)
0.1~0.5 (1~5)	0.025 or less (0.25 or less)	0.04 or less (0.4 or less)
0.12~0.6 (1.2~6)	0.03 or less (0.3 or less)	0.048 or less (0.48 or less)
0.16~0.8 (1.6~8)	0.04 or less (0.4 or less)	0.064 or less (0.64 or less)
0.2~1 (2~10)	0.05 or less (0.5 or less)	0.08 or less (0.8 or less)

Differential pressure ranges marked with \* can handle inverse differential pressure .

## DIMENSIONS 1

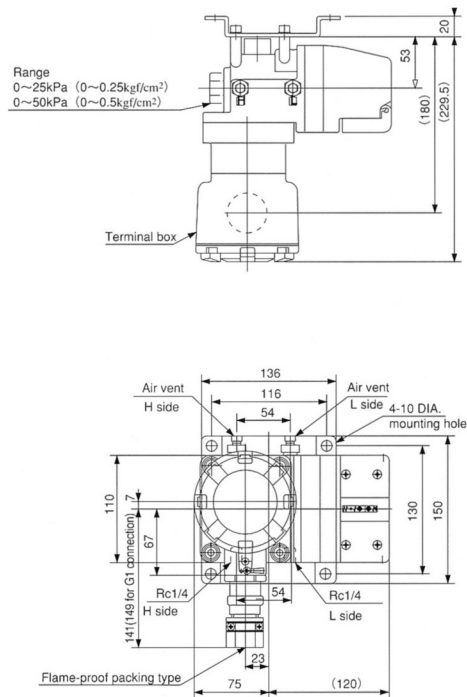
### CL71



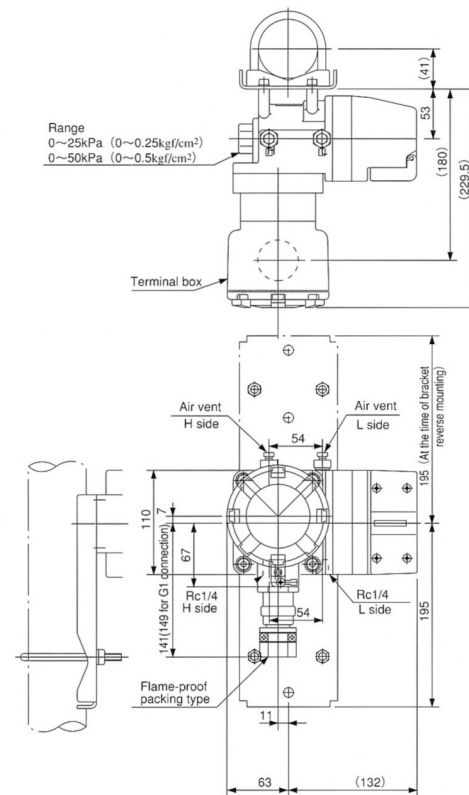
## DIMENSIONS 2

CD71

Panel mounting

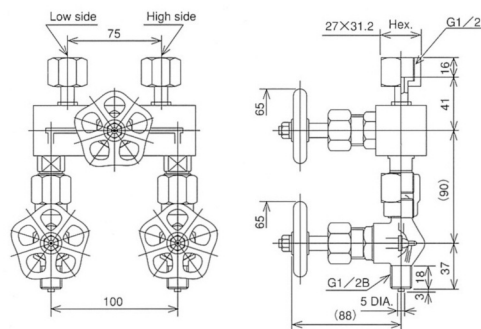


2B pipe mounting



### Valve-manifold : (Option)

Three-way valve manifold which combined the stop valve for high and low pressure and strap valve. This valve manifold is suitable for checking zero point or zero adjustment during operation and also available to prevent excess differential pressure or reversal differential pressure.



## EXPLOSION-PROTECTED CONSTRUCTION

### Type approval for explosion-proof : (CD71)

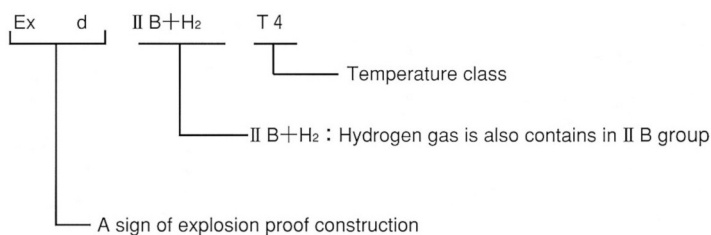
It acquires a technical standard adjusted in international standard IEC by the ministry of Labor notification and the national authorization on the basis of new explosion proof guide.

Type name	Type approval number
CD71 One contact	No.C 1 2 2 7 8
CD71 Two contact	No.C 1 2 3 3 9

### Explosion-protected construction :

Explosion protected-construction is a totally enclosed construction such that even if the explosive gas explodes inside the container, the container withstands the force of the explosion and there is no danger of ignition of external explosive gases.  
As for our differential pressure switch produced based on this policy, use can have combustible gases or steam of combustibility liquid in pressure measurement at a place with existing fear in a factory, other business office.

### Exd II+H<sub>2</sub> T4 :



### Group classification

A kind of explosion proof electrical instrument and apparatus is classed in group I and group II by a place to be used.  
CD71 belongs to group II, and comes under machinery using it in a factory except hazardous location of the mine or hazardous location of business office.

### Applicable group and classification of gas or steam.

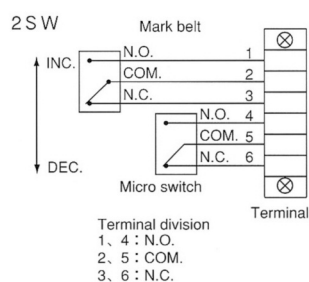
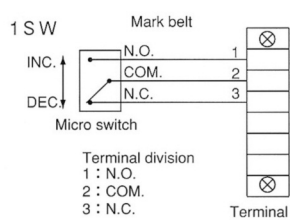
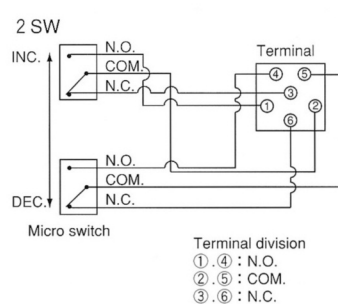
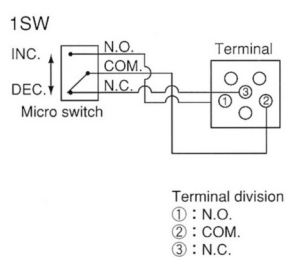
Classification of gas or steam	Applicable group		
A	IIA	IIB	IIC
B	—	IIB	IIC
C	—	—	IIC

### Ignition point of gas or steam which T4 can apply.

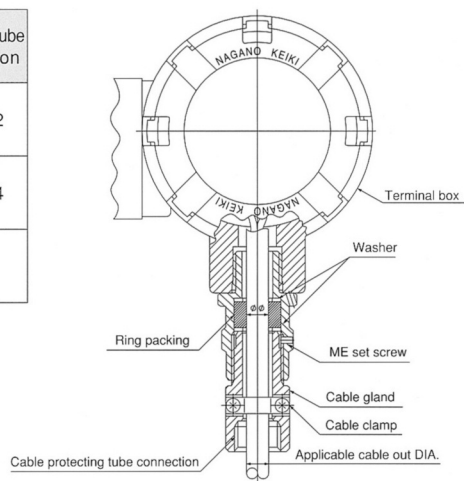
Ignition point of gas or steam	Applicable temperature class					
Higher than 450°C	T1	T2	T3	T4	T5	T6
Higher than 300°C	—	T2	T3	T4	T5	T6
Higher than 200°C	—	—	T3	T4	T5	T6
Higher than 135°C	—	—	—	T4	T5	T6
Higher than 100°C	—	—	—	—	T5	T6
Higher than 85°C	—	—	—	—	—	T6

### Example of applicable gas or steam.

Temperature class Group	T1	T2	T3	T4	T5	T6
IIA	Acetone Ammonia Carbon monoxide Ethane Acetic acid Ethyl acetate Toluene Propane Benzene Methanol Methane	Ethanol 1-butanol Butane	Hexane	Acetaldehyde		
IIB		Ethylene Ethyleneoxide		Ethylmethyl Ether		
IIC	Hydrogen	Acetylene			Carbon bisulfide	Nitric acid ethyl

**WIRING****CL71****CD71****OUTLET FOR ELECTRIC WIRE**

Conduit Connection	Packing inner DIA. (d)	Applicable cable Out DIA.	Protecting tube Connection
PF1/2	8 DIA.~12 DIA. Available by 1mm step	7.0 DIA.~12.0 DIA. Available by 0.5mm step	PF1/2
PF3/4	13 DIA.~16 DIA. Available by 1mm step	12.0 DIA.~16.0 DIA. Available by 0.5mm step	PF3/4
PF1	17 DIA.~20 DIA. Available by 1mm step	16.0 DIA.~20.0 DIA. Available by 0.5mm step	PF1





## Type No. constitution

Please specify Type No., each specification and range when ordering.

Note : For this Model, there is no applicable item for the figures X, but please specify X when ordering.

C	L	7	1	General process use
C	D	7	1	Explosion-protected construction

Model

Differential pressure switch

**C** **7** **1** — 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 10 — 11 — 12 — 13 — 14 — 15

Type No.

1 Mounting type

In case of CL71

1	Panel mounting, one contact
2	Panel mounting, two contact
3	2B pipe mounting, one contact
4	2B pipe mounting, two contact

In case of CD71

3	Panel mounting Flame-proof packing type One contact
4	Panel mounting Flame-proof packing type Two contact
7	2B pipe mounting Flame-proof packing type One contact
8	2B pipe mounting Flame-proof packing type Two contact

2 Connection

7	Rc 1/4
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※ Other connections are also available.

3 Wetted parts material

3	Body : SCS14, Spring : 304st.st., Bolt : 305st.st., Diaphragm : 316st.st. + NBR (Buna-N) O-ring : NBR
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4 Differential pressure range (MPa)

(When ordering, please specify pressure range & unit.)

1	0~0.025, 0~0.05
2	0.005~0.025
3	0.01~0.05, 0.02~0.1, 0.04~0.2, 0.06~0.3, 0.08~0.4
4	0.1~0.5, 0.12~0.6, 0.16~0.8
5	0.2~1

5 Type of contact

1	H : Upper limit type with one contact
2	L : Lower limit type with one contact
4	2H : Upper limit type with two contact
5	2L : Lower limit type with two contact

6 Switch

0	Standard
1	Ultra high sensitivity switch (One contact only)
3	Standard + gold plated
4	Ultra high sensitivity switch + gold plated (one contact only)

Additional spec. (Option)

9 Other additional spec.

0	Ni 1
1	Please specify your requirement Valve manifold (st. st.) Case finishing
2	Indicating (DG95, 96)

8 Treatment

0	Nil
1	Use no oil
2	Use no water
3	Use no oil & water

In case of CL71

7 Outlet for electric wire

3	Conduit PF3/4 female
7	Gland JIS 20b

In case of CD71

7 Outlet for electric wire

3	Packing inner DIA.11mm (PF1/2 female)
4	Packing inner DIA.12mm (PF1/2 female)
6	Packing inner DIA.14mm (PF3/4 female)
8	Packing inner DIA.16mm (PF3/4 female)
A	Packing inner DIA.17mm (PF1 female)

※ Since the inside diameter of the packing can be manufactured in 1-mm step, please consult us for other cases.

15 Document

0	Nil
1	Please specify your requirement Drawing one sheet, Instruction manual, Inspection procedure, Mill sheet, Test report