



# CB15 Pressure Switch

## OUTLINE

This is a pressure switch designed and manufactured by placing emphasis on durability and reliability. It is applicable to direct control of equipment as a job site type. Since it is a microswitch type, stable switching is obtained by snap action.

## FEATURES

- Pressure setting and dead band setting are easily performed from the outside.
- The dead band can be selected from adjustable type and fixed type according to the application.
- Setting scale without divisions is standard, but a scale with divisions is also available as an option.

\* When selecting a pressure switch, select the pressure range over which the gauge will demonstrate top performance in a working pressure range within 30 to 65% of full scale. Also check whether the wetted parts material is suitable for the gas or fluid to be measured.

## SPECIFICATION 1

### Fluid:

Gas or liquid (However, there shall be no freezing.)

### Operating environment:

Places where there are no inflammable liquids or gases which may cause ignition or explosion under normal conditions

### Connection:

G3/8B (PF), G1/2B (PF), R3/8 (PT), R1/2 (PT), 3/8NPT, 1/2NPT

\* For other connections, please contact us.

### Wetted parts materials:

General use

Bellows C5212R

Tank & socket C3771

\* Available up to 5MPa range.

Corrosion-proof use

Bellows SUS316L

Tank & socket SCS14

### Pressure range:

0.01~0.1→1~10 MPa

### Puncture pressure:

0.15~15 MPa (Depends on the pressure range.)

### Operating temperature:

-5~40 °C

### Accuracy:

Within  $\pm 1.0\%$  max. P.

### Setting accuracy: (Option)

$\pm 3\%$  max. P. (Setting scale divisions type)

### Dead band:

Adjustable type 0.005~0.02→0.5~2 MPa  
(Depends on the pressure range.)

Fixed. 0.005~0.5 MPa or less

(Depends on the pressure range.)

### Switch:

Microswitch

### Number of contacts:

One contact (General use, DC use) or  
two contacts (simultaneous operation)

### Setting system:

External adjustment type

### Outlet for electric wire:

Gland JIS 20b

\* Conduit type is also available. Contact NKS for details.

### Case material & finish:

ADC12 · Gray crystal paint

### Case construction:

IP43

### Weight:

Approx. 1.2kg

# CB15 Pressure Switch

## SPECIFICATION 2

### Pressure range and dead band - pressure resistance:

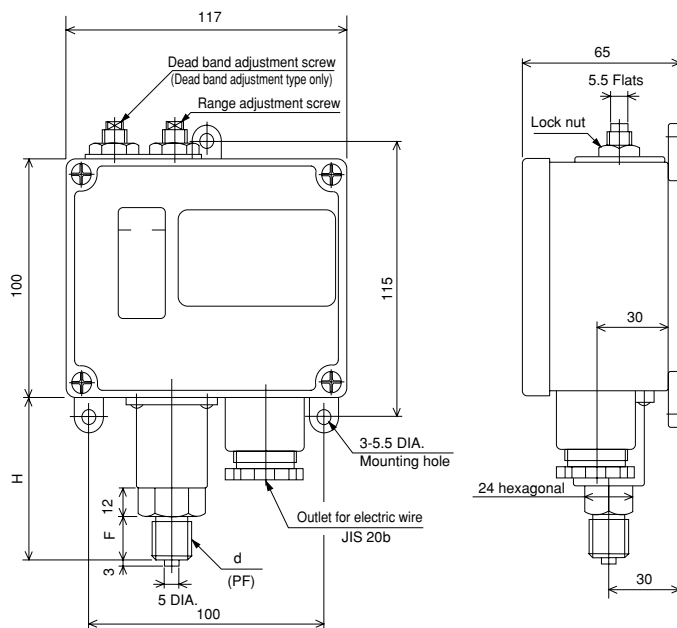
Pressure range MPa (Pressure setting range)	Dead band: MPa		Puncture pressure MPa
	Fixed.	Adjustable type	
0.01~0.1	0.005 or less	0.005~0.02	0.15
0.02~0.2	0.01 or less	0.01 ~0.04	0.3
0.04~0.4	0.02 or less	0.02 ~0.08	0.6
0.06~0.6	0.03 or less	0.03 ~0.12	0.9
0.1 ~1	0.05 or less	0.05 ~0.2	1.5
0.15~1.5	0.075 or less	0.075~0.3	2.25
0.2 ~2	0.1 or less	0.1 ~0.4	3
0.35~3.5	0.175 or less	0.175~0.7	5.25
0.5 ~ 5	0.25 or less	0.25 ~1	7.5
*0.7 ~ 7	0.35 or less	0.35 ~1.4	10.5
*1 ~10	0.5 or less	0.5 ~2	15

\* Wetted parts material: Corrosion-proof applications only.

### Electrical characteristics:

Switch	Rating			Withstand voltage	Insulation resistance
	Resistance load	Inductive load			
One contact Standard type	125V AC	20 A	20 A	2000V AC  Between terminals and case for 1 minute	500V DC 100MΩ or over  Between terminals and case
	250V AC	20 A	20 A		
	125V DC	0.5 A	0.05A		
	250V DC	0.25A	0.03A		
One contact Direct current type	125V AC	10 A	6 A	1500V AC  Between terminals and case for 1 minute	
	250V AC	3 A	1.5 A		
	125V DC	10 A	6 A		
	250V DC	3 A	1.5 A		
Two contacts Simultaneous operation	125V AC	10 A	6 A	Between terminals and case for 1 minute	
	250V AC	10 A	4 A		
	125V DC	0.5 A	0.05A		
	250V DC	0.25A	0.03A		
· Inductive load: Power factor 0.4 or over (AC), Time constant 7ms or less (DC)					

## DIMENSIONS



Range MPa	d	G3/8B (PF)		G1/2B (PF)	
		H	F	H	F
0.01~ 0.1		76	18	78	20
0.02~ 0.2		68	18	70	20
0.04~ 0.4		68	18	70	20
0.06~ 0.6		68	18	70	20
0.1 ~ 1		68	18	70	20
0.15~ 1.5		54	18	56	20
0.2 ~ 2		54	18	56	20
0.35~ 3.5		54	18	56	20
0.5 ~ 5		54	18	56	20
0.7 ~ 7		54	18	56	20
1 ~10		54	18	56	20

**TYPE OF CONTACTS AND WIRING SYSTEM**

	Setting system	Mark	Operation system		Contact terminal number
S.P.D.T.	Upper limit type with one contact	H	When the pressure reaches the set pressure or higher, the contacts operate and turn on a circuit.		NO1—COM1
	Lower limit type with one contact	L	When the pressure drops below the set pressure, the contacts operate and turn on a circuit.		NC1—COM1
D.P.D.T.	Upper limit type with two contacts	WH	Combines two upper limit types which operate simultaneously.		NO1—COM1 NO2—COM2
	Lower limit type with two contacts	WL	Combines two lower limit types which operate simultaneously.		NC1—COM1 NC2—COM2

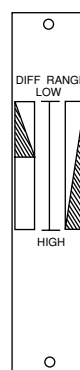
**CONDITIONS FOR APPLICATION**

Pressure changing speed, Number of switching times, Permissible frequency

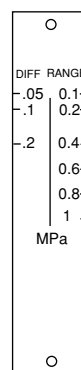
Microswitch contacts type	Pressure changing speed	Number of switching times (Electric)	Permissible frequency (Electric)
Standard S.P.D.T.	Within 15 minutes	250,000 times or over	20 times/minute
Direct current type S.P.D.T.	Within 10 minutes	100,000 times or over	
Simultaneous operation D.P.D.T.		250,000 times or over	

Note: The pressure changing speed refers to the time required for the pressure to go from 0 to a pressure corresponding to the highest range.

**SETTING SCALE**



Setting scale without divisions



Setting scale with divisions (option)

(Example)  
Pressure range 0.1~1MPa

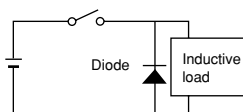
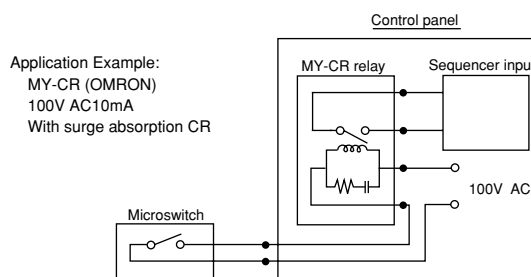
**REMARKS**

**1. As a sequencer input;**

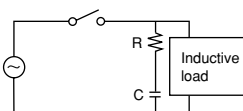
The contact resistance of the microswitch increases gradually as time passes. When used in an atmosphere, especially atmospheres containing Si, SiO<sub>2</sub> accumulates at the contact part as the switch is operated and the contact resistance increases in a short time. Therefore, use the gauge in a clean and well-ventilated atmosphere. When the gauge is used as sequencer input for control use, input it through a 100V AC relay, because the contacts may be fail for these reasons.

**2. Insertion of contact protection circuit**

With an inductive load switching circuit, insert a protection circuit to protect the contacts. When using a relay, select the type with a built-in contact protection circuit.



DC only. Select a diode which can amply withstand the reverse voltage.



AC use possible.  
R: Several 10Ω  
C: 0.1~0.2μF

# CB15 Pressure Switch

## Model number configuration

For ordering, please specify the model number, each specs and range.

<b>C B 1 5</b>	—					<b>7</b>			×	×	×	×	×			
Pressure Switch		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
Model		Selective spec.						Additional spec. (Option)								
① Switch (Dead band, Type of contact)	1	Dead band adjustable type	1 contact standard S.P.D.T.													
	2	Dead band adjustable type	1 contact direct current S.P.D.T.													
	3	Dead band adjustable type	2 contacts simultaneous operation D.P.D.T.													
	4	Dead band fixed type	1 contact standard S.P.D.T.													
	5	Dead band fixed type	1 contact direct current S.P.D.T.													
	6	Dead band fixed type	2 contacts simultaneous operation D.P.D.T.													
② Connection	3	G3/8B														
	4	G1/2B														
	G	R3/8														
	H	R1/2														
	L	3/8NPT														
	M	1/2NPT														
③ Wetted parts materials	1	Standard	Bellows: C5212R Tank & socket: C3771													
	3	Corrosion-proof use	Bellows: SUS316L Tank & socket: SCS14													
(When ordering, please specify the range and units separately.)	④ 圧カレンジ (MPa)	1	0.01~0.1													
		2	0.02~0.2, 0.04~0.4, 0.06~0.6, 0.1~1													
		3	0.15~1.5, 0.2~2, 0.35~3.5, 0.5~5													
		4	0.7~7, 1~10 Wetted parts material: Tank & socket: SCS14, Bellows: SUS316L only													
⑤ Contact	A	H: Upper limit type with 1 contact														
	B	L: Lower limit type with 1 contact														
	T	WH: simultaneous operation Upper limit type with 2 contacts														
	V	WL: simultaneous operation Lower limit type with 2 contacts														
⑥ Switch	0	Standard														
	3	Standard + gold plated (1 contact standard only)														
⑦ Outlet for electric wire	7	Gland JIS 20b														
	⑧ Treatment	0	Nil													
		1	Use no oil													
		2	Use no water													
		3	Use no oil & water													
⑨ Other additional specifications	0	Nil														
	1	Required (Please specify the desired documents separately.) Coating specification, setting scale with divisions Adjustment screw cap														
⑮ Documents	0	Nil														
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, inspection procedure, mill sheet, test report (1 pc 1 copy), traceability certificate, inspection certificate, standard inspection report, dial strength calculation, attended inspection														

Manufacturing range  
·7MPa or greater: Connection port SCS14, Bellows SUS316L

○Setting dial includes the setting error. Therefore, for accurate adjustment,  
always compare with a master gauge and base pressure gauge and set.

Specify "X" if there is no specification item.

The contents in the catalogue are subject to change without notice.

 **NAGANO KEIKI CO., LTD.**

Gets ISO 9001, ISO 14001, ISO/TS 16949 Certification

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