

Pressure Gauges with Electric Contact (Contact Switch Type)



OUTLINE

These are pressure gauges with electric contacts with a built-in open type low contact pressure switch, and are primarily used for bell, buzzer, lamp flickering, and other warning applications.

FEATURES

- Applicable when pressure indication is necessary at the job site.
- Since one element is used for both indication and contact, they are comparatively small and light weight.
- The indicator graduations and setting graduations are separate, but setting at any position over the whole range is possible.
- The difference between open and close is small and setting is easy because the setting scale angle is wide.
- The contact tip in the setting mechanism is made of high melting point platinum-osmium alloy.

* 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 (Element is Bourdon tube only.)

Operating environment:

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

Mounting:

Stem  Type B (Mounting hole)

Panel mounted type ···  Type D (Mounting clamp, Mounting hole)

Pressure element:

Bourdon tube type or bellows type (30kPa range or less only)

Size:

100 DIA. (Model: JC11·16), 150 DIA. (Model: JC13·18·21·26), 200 DIA. (Model: JC31·36·41·46)

Connection:

G3/8B (PF), G1/2B (PF)

* Joint connection is also available in addition to the connection above. Contact NKS for details.

Wetted parts materials:

General use

Socket CAC203

Bourdon tube C6872T Bellows C5212R

* Available up to 35MPa range.

Corrosion-proof use

Socket SUS316 or SCS14

Bourdon tube SUS316 Bellows SUS316L

Pressure range:

20~100 kPa (Receiver)

0~1.5 kPa→0~70 MPa

-0.1~0→-0.1~2 MPa

* 0~30kPa range or less element : Bellows type only.

Operating temperature:

-5~40 °C (However, there shall be no freezing.)

Indication accuracy:

±1.5%F.S. (Receiver range ±0.75%F.S.)

* Accuracy when contacts are free.

Setting accuracy:

±2%F.S.

Repeatability:

±1%F.S. or less

Dead band:

2%F.S. or less

DC load 5%F.S. or less

Switch:

Contact switch (Open type low contact pressure)

Number of contacts:

1 contact or 2 contacts * Normally used "Open".

Setting system:

Internal adjustment

The setting pointer of the upper limit type is moved to the set point from the high pressure side and the setting pointer of the lower limit type is moved to the set point from the low pressure side by turning the adjusting screw on the front of the gauge with a screwdriver.

* External adjustment is also available. (Option)

Outlet for electric wire:

Gland JIS 20b (4P receptacle)

However, 100 DIA. is 2P metal receptacle.

Case material & finish:

AC7A·Black (However, stem type 100 DIA. is ADC12.)

Case construction :

Drip-proof II type (IP32)

Weight:

Approx. 0.8 kg~3.2 kg

Pressure Gauges with Electric Contact (Contact Switch Type)

SPECIFICATION 2

Electrical characteristics:

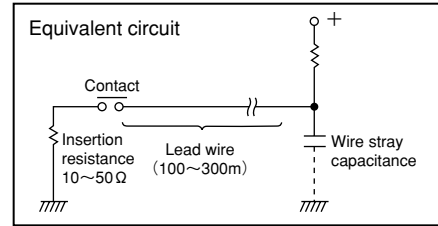
	Rating		Withstand voltage	Insulation resistance
	Resistance load	Inductive load ※		
100V AC	0.5A	0.05A	1000V AC Between terminals and case for 1 minute	500V DC 100MΩ or over Between terminals and case
100V DC	0.05A	0.01A		

· Inductive load : Power factor 0.6 or over (AC)
Time constant 7ms or less (DC)

※ Always use a contacts protection diode.

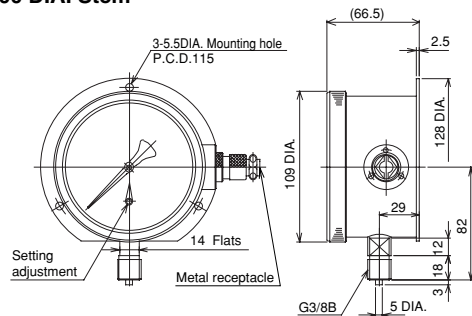
* When an inrush current is generated by use of an inductive load and long cable (several tens of meters or over), use a contacts protection circuit like that shown at the right.

Example of contacts protection circuit:

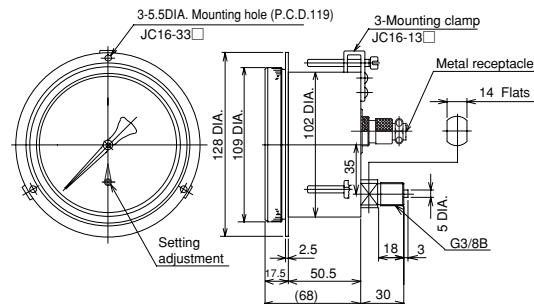


DIMENSIONS

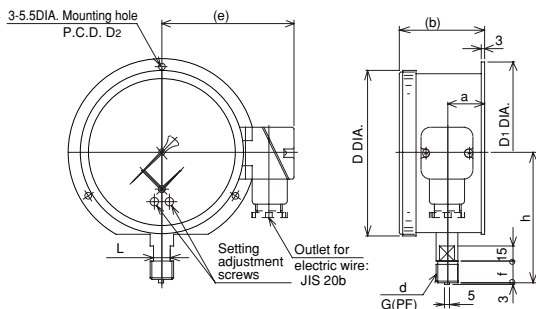
100 DIA. Stem



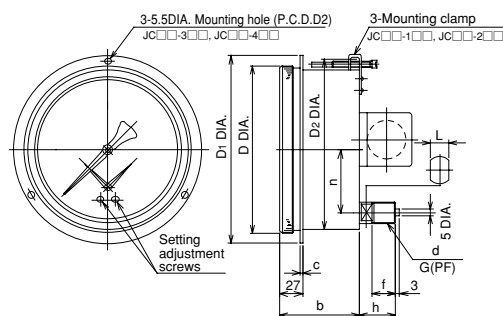
100 DIA. Panel mounted type



150 DIA. ·200 DIA. Stem



150 DIA. ·200 DIA. Panel mounted type



Model number	Connection d	D	D ₁	D ₂	a	b	h	e	L	f
JC13-□□□	G3/8B	159	178	165	36	82.5	123	129	14	18
JC21-□□□	G1/2B									
JC31-□□□	G3/8B	210	235	220	84	132	150	150	14	18
	G1/2B									
JC41-□□□	G3/8B	210	235	220	70	140	150	150	14	18
	G1/2B									

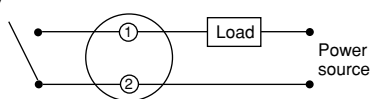
Model number	Connection d	D	D ₁	D ₂	D ₃	b	c	h	n	L	f
JC18-□□□	G3/8B	159	178	169	152	77.5	2.5	30	60	14	18
JC26-□□□	G1/2B										
JC36-□□□	G3/8B	210	235	220	203	115	3	30	70	14	18
	G1/2B										
JC46-□□□	G3/8B	210	235	220	203	139	3	33	70	14	18
	G1/2B										

TYPE OF CONTACTS AND WIRING SYSTEM

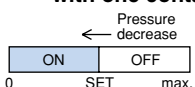
1. Upper limit type with one contact (H)



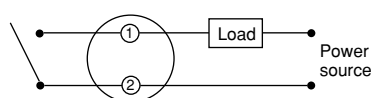
When the pressure rises to the set pressure, the contacts operate and turn ON the circuit.



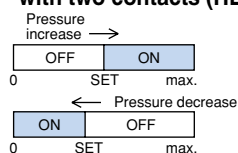
2. Lower limit type with one contact (L)



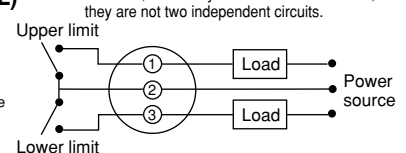
When the pressure drops to the set pressure, the contacts operate and turn ON the circuit.



3. Upper and lower limit type with two contacts (HL)



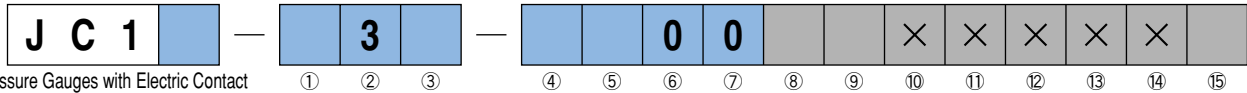
Combines the two contacts upper limit type and lower limit type and forms two circuits. However, since they have common terminals, they are not two independent circuits.



Pressure Gauges with Electric Contact (Contact Switch Type)

Model number configuration

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



Pressure Gauges with Electric Contact
(Contact Switch Type)
(100 DIA. Bourdon tube type)

Model		Selective spec.	Additional spec. (Option)	
Model	1	Stem		
Model	6	Panel mounted type		
① Mounting (Type and number of contacts)		Stem	Panel mounted type	
	1	Type B (Mounting hole) One contact	Type D (Mounting clamp) One contact	
② Connection	3	G3/8B		
		1	General use	
③ Wetted parts materials		3	Corrosion-proof use	
	④ Pressure range (MPa) <small>(When ordering, please specify the range and units separately.)</small>	1	20~100 kPa Receiver	
2		-0.1~0.1, 0.2, 0.3, 0.4, 0.6, 1, 1.5, 2		
3		0~0.05, 0.07, 0.1, 0.2, 0.3, 0.4, 0.6, 1, 1.5, 2, 2.5, 3.5, -0.1~0		
4		0~5, 7, 10		
5		0~15, 25, 35		
6		0~50, 70 (Corrosion-proof use only)		
⑤ Contact	A	H: Upper limit type with 1 contact		
	B	L: Lower limit type with 1 contact		
⑥ Switch	0	Standard (contact switch)		
⑦ Outlet for electric wire	0	Standard (2P metal receptacle)		
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.) External adjustment type		
⑩ 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, attended inspection		

Manufacturing range

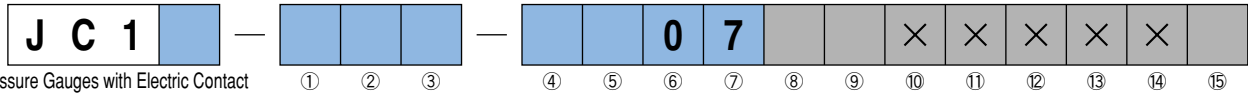
- Indication accuracy: $\pm 1.5\%$ F.S.
- Receiver: $\pm 0.75\%$ F.S.
- Setting accuracy: $\pm 2\%$ F.S.
- 100 DIA.: Two contacts type not available

Specify "X" if there is no specification item.

Pressure Gauges with Electric Contact (Contact Switch Type)

Model number configuration

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



Pressure Gauges with Electric Contact
(Contact Switch Type)
(150 DIA. Bourdon tube type)

Model		Selective spec.	Additional spec. (Option)	
Model	3	Stem		
Model	8	Panel mounted type		
① Mounting (Type and number of contacts)		Stem	Panel mounted type	
	1	Type B (Mounting hole) One contact	Type D (Mounting clamp) One contact	
	2	Type B (Mounting hole) Two contacts	Type D (Mounting clamp) Two contacts	
	3	_____	Type D (Mounting hole) One contact	
② Connection	3	G3/8B		
	4	G1/2B		
③ Wetted parts materials	1	General use		
	3	Corrosion-proof use		
(When ordering, please specify the range and units separately.)	④ Pressure range (MPa)	1	20~100 kPa Receiver	
		2	-0.1~0.1, 0.2, 0.3, 0.4, 0.6, 1, 1.5, 2	
		3	0~0.05, 0.07, 0.1, 0.2, 0.3, 0.4, 0.6, 1, 1.5, 2, 2.5, 3.5, -0.1~0	
		4	0~5, 7, 10	
		5	0~15, 25, 35	
		6	0~50, 70 (Corrosion-proof use only)	
⑤ Contact	A	H: Upper limit type with 1 contact		
	B	L: Lower limit type with 1 contact		
	C	HL: Upper and lower limit type with 2 contacts		
⑥ Switch	0	Standard (contact switch)		
⑦ Outlet for electric wire	7	Gland JIS 20b (4P receptacle)		
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.) External adjustment type		
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, attended inspection		

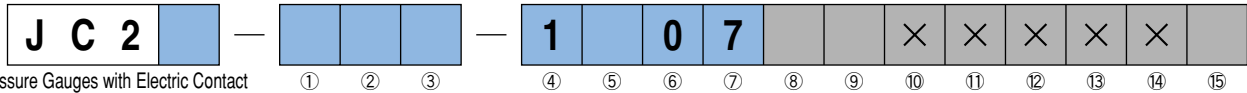
Manufacturing range
 · Indication accuracy: $\pm 1.5\%$ F.S.
 Receiver: $\pm 0.75\%$ F.S.
 · Setting accuracy: $\pm 2\%$ F.S.

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Pressure Gauges with Electric Contact (Contact Switch Type)

Model number configuration

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



Pressure Gauges with Electric Contact
(Contact Switch Type)
(150 DIA. bellows type)

Model		Selective spec.	Additional spec. (Option)	
Model	1	Stem		
Model	6	Panel mounted type		
① Mounting (Type and number of contacts)		Stem	Panel mounted type	
	1	Type B (Mounting hole) One contact	Type D (Mounting clamp) One contact	
	2	Type B (Mounting hole) Two contacts	Type D (Mounting clamp) Two contacts	
	3	_____	Type D (Mounting hole) One contact	
② Connection	3	G3/8B		
	4	G1/2B		
③ Wetted parts materials	1	General use		
	3	Corrosion-proof use		
④ Pressure range (kPa) <small>(When ordering, please specify the range and units separately.)</small>	1	0~15, 20, 30		
⑤ Contact	A	H: Upper limit type with 1 contact		
	B	L: Lower limit type with 1 contact		
	C	HL: Upper and lower limit type with 2 contacts		
⑥ Switch	0	Standard (contact switch)		
⑦ Outlet for electric wire	7	Gland JIS 20b (4P receptacle)		
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 <small>(Please specify the desired documents separately.)</small> External adjustment type		
⑮ Documents	0	Nil		
	1	Required <small>(Please specify the desired documents separately.)</small> Submission drawings, instruction manual, inspection procedure, mill sheet, test report (1 pc 1 copy), traceability certificate, attended inspection		

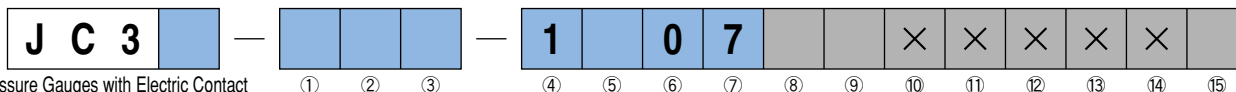
Manufacturing range
 • Indication accuracy: $\pm 1.5\%$ F.S.
 • Setting accuracy: $\pm 2\%$ F.S.

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Pressure Gauges with Electric Contact (Contact Switch Type)

Model number configuration

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



Pressure Gauges with Electric Contact
(Contact Switch Type)
(200 DIA. bellows type)

Model		Selective spec.	Additional spec. (Option)	
Model	1	Stem		
Model	6	Panel mounted type		
① Mounting (Type and number of contacts)		Stem	Panel mounted type	
	1	Type B (Mounting hole) One contact	Type D (Mounting clamp) One contact	
	2	Type B (Mounting hole) Two contacts	Type D (Mounting clamp) Two contacts	
	3	_____	Type D (Mounting hole) One contact	
② Connection	3	G3/8B		
	4	G1/2B		
③ Wetted parts materials	1	General use		
	3	Corrosion-proof use		
(When ordering, please specify the range and units separately.)	④ Pressure range (kPa)	1	0~5, 7, 10	
	⑤ Contact	A	H: Upper limit type with 1 contact	
		B	L: Lower limit type with 1 contact	
		C	HL: Upper and lower limit type with 2 contacts	
⑥ Switch	0	Standard (contact switch)		
⑦ Outlet for electric wire	7	Gland JIS 20b (4P receptacle)		
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.) External adjustment type		
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, attended inspection		

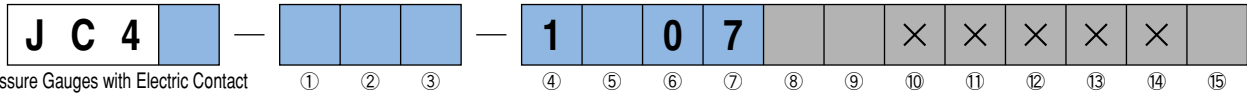
Manufacturing range
 • Indication accuracy: $\pm 1.5\%$ F.S.
 • Setting accuracy: $\pm 2\%$ F.S.

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Pressure Gauges with Electric Contact (Contact Switch Type)

Model number configuration

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



Pressure Gauges with Electric Contact
(Contact Switch Type)
(200 DIA. bellows type)

Model		Selective spec.		Additional spec. (Option)	
Model	1	Stem			
Model	6	Panel mounted type			
① Mounting (Type and number of contacts)	Stem		Panel mounted type		
	1	Type B (Mounting hole) One contact	Type D (Mounting clamp) One contact		
	2	Type B (Mounting hole) Two contacts	Type D (Mounting clamp) Two contacts		
	3	_____	Type D (Mounting hole) One contact		
② Connection	3	G3/8B			
	4	G1/2B			
③ Wetted parts materials	1	General use			
	3	Corrosion-proof use			
④ Pressure range (kPa) <small>(When ordering, please specify the range and units separately.)</small>	1	0~1.5, 2, 3, 4			
	⑤ Contact	A	H: Upper limit type with 1 contact		
	B	L: Lower limit type with 1 contact			
	C	HL: Upper and lower limit type with 2 contacts			
⑥ Switch	0	Standard (contact switch)			
⑦ Outlet for electric wire	7	Gland JIS 20b (4P receptacle)			
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 <small>(Please specify the desired documents separately.)</small> External adjustment type			
⑮ Documents	0	Nil			
	1	Required <small>(Please specify the desired documents separately.)</small> Submission drawings, instruction manual, inspection procedure, mill sheet, test report (1 pc 1 copy), traceability certificate, attended inspection			

Manufacturing range
 • Indication accuracy: $\pm 1.5\%$ F.S.
 • Setting accuracy: $\pm 2\%$ F.S.

Specify "X" if there is no specification item.



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