CQ30
Pressure Switch

Outline

This is a pressure switch with outstanding safety characteristics using a microswitch for contact mechanism.
This switch can be manufactured over a wide pressure range from low pressure to high pressure and is therefore suitable for liquid level control, flow control and also for pneumatic, hydraulic pressure and other fluid pressure controls.

Features

- Bourdon tube which was developed for durable pressure switch is used and is suitable for vibration.
- The one contact type or two contact type can be selected. With the two contact type, the setting of upper limit and lower limit can be possible.
- Acid-proof coating prevents rusting from salt damage.

Range of recommended pressure setting
Upper limit type: (10%max.P.+Dead band)～90%max.P.
Lower limit type: 10%max.P.～(90%max.P.−Dead band)
Compound: %max.P. → %F.S.

＊When selecting pressure switches, Please select a pressure range with normal operation pressure within 30 to 65% of full span to get full performance. Also check whether wetted parts material could be used for gases or liquids to be measured.

Specifications 1

Item	Description
Fluid	Gas or Liquid (No frezing)
Operating environment	Places where there are no inflammable liquids or gases which may cause ignition or explosion under normal conditions.
Mounting	Panel mounting
Connection	G3/8B, G1/2B, R1/4, R3/8, R1/2, 1/4NPT, 3/8NPT, 1/2NPT Please contact us about connection without the description.
Wetted parts material	Bourdon tube: SUS316 Socket: SCS14
Pressure range	0 to 0.2 → 0 to 70 MPa -0.1 to 0.2 → -0.1 to 2 MPa
Proofpressure	1.5 times the pressure range
Set width	Minimum set width for two contacts type is a dead band.
Operating temperature	-20 to 60 ℃
Accuracy	±1%max.P. (Compound: ±1%F.S.)
Temperature cofficient	0.05%max.P./℃ (Compound: 0.05%F.S./℃)
Dead band	Specification 2 references.
Switch	Micro switch
Quantity of switch	One contact or two contacts
Setting system	Internal adjustment type, with setting lock (However, when the set value is specified, the setting adjustment screw is locked.)
Outlet for electric wire	Conduit type: G3/4 female (Standard), Others Gland: JIS 20b (Standard), Others
Case material, finishing	ADC12, Blue & Gray, Epoxy painted
Case structure	Water-proof (Equivalent to IP65)
Terminal box (Option)	Although the wire used to have to be removed from the terminal plate and the tester terminal pressed against it when measuring contact resistance, with the provision of a check terminal, simply remove the screws on the terminal plate and insert the terminals of the tester. This ensures stability when measuring and eliminates the trouble of removing the wire from the terminal plate.
Operation lamp (Option)	The on/off state of the pressure switch and the operating state of the microswitch can also be confirmed at a glance.
Weight	Approx. 1.3 kg

Specifications 2

Electrical characteristics: (Standard specification)

<table>
<tr><th colspan="3">Rating</th><th rowspan="2">Withstand voltage</th><th rowspan="2">Insulation resistance</th></tr>
<tr><th></th><th>Resistance load</th><th>Inductive load</th></tr>
<tr><td>125V AC</td><td>15 A</td><td>15 A</td><td rowspan="5">1500V AC

Between terminals and case for 1 minute</td><td rowspan="5">500V DC
100MΩ or over

Between terminals and case</td></tr>
<tr><td>250V AC</td><td>15 A</td><td>15 A</td></tr>
<tr><td>30V DC</td><td>2 A</td><td>1 A</td></tr>
<tr><td>125V DC</td><td>0.5 A</td><td>0.05 A</td></tr>
<tr><td colspan="3">·Inductive load: Power factor 0.4 or over (AC)
Time constant 7ms or less (DC)</td></tr>
</table>

Specifications 2

Pressure range, dead band and proofpressure:

Pressure range MPa	Dead band MPa		Proofpressure MPa
	1 contact	2 contacts	
0～0.2	0.014 or less	0.02 or less	0.3
0～0.4	0.028 or less	0.04 or less	0.6
0～0.6	0.042 or less	0.06 or less	0.9
0～1	0.07 or less	0.1 or less	1.5
0～1.5	0.08 or less	0.12 or less	2.25
0～2	0.08 or less	0.14 or less	3
0～2.5	0.1 or less	0.18 or less	3.75
0～3.5	0.14 or less	0.25 or less	5.25
0～5	0.2 or less	0.35 or less	7.5
0～7	0.25 or less	0.4 or less	10.5
0～10	0.3 or less	0.5 or less	15
0～15	0.45 or less	0.75 or less	22.5
0～25	0.75 or less	1.25 or less	37.5
0～35	1.25 or less	1.75 or less	52.5
0～50	2.5 or less	4 or less	75
0～70	3.5 or less	5.6 or less	105
-0.1～0.2	0.021 or less	0.03 or less	0.3
-0.1～0.4	0.035 or less	0.05 or less	0.6
-0.1～0.6	0.049 or less	0.07 or less	0.9
-0.1～1	0.07 or less	0.1 or less	1.5
-0.1～1.5	0.08 or less	0.12 or less	2.25
-0.1～2	0.08 or less	0.14 or less	3

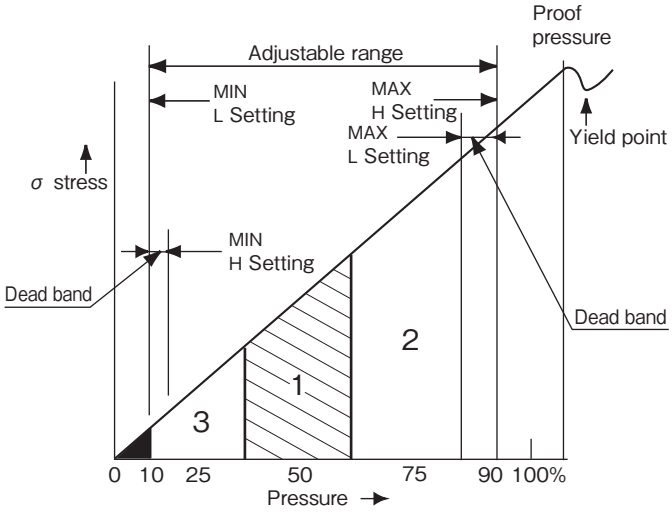
How to choose pressure

- Set value is steady, accurately: 30%max.P. or over
- Longevity is good: 65%max.P. or less
- Accuracy, Longevity is good [Ideal]:
  About 30 to 65% of the adjustable ranges

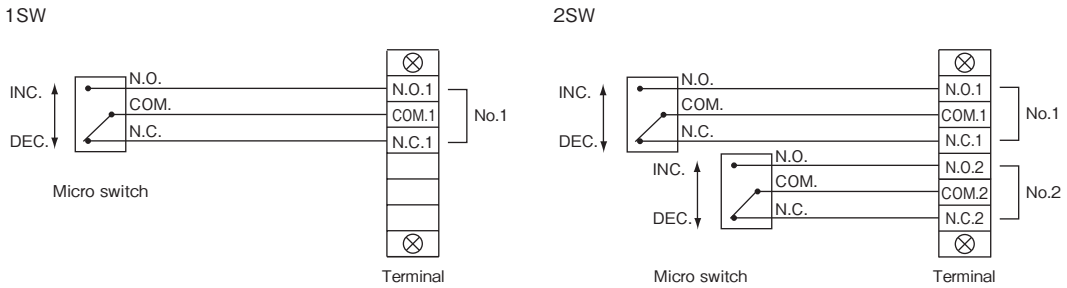
In the right figure
Range 1: Selection of both accuracy and longevity
Range 2: Selection of valuing accuracy
Range 3: Selection of valuing longevity

Range of recommended pressure adjustment

Upper limit type: (10%max.P.+Dead band)～90%max.P.
Lower limit type: 10%max.P.～(90%max.P.−Dead band)
Compound: %max.P. → %F.S.



Wiring



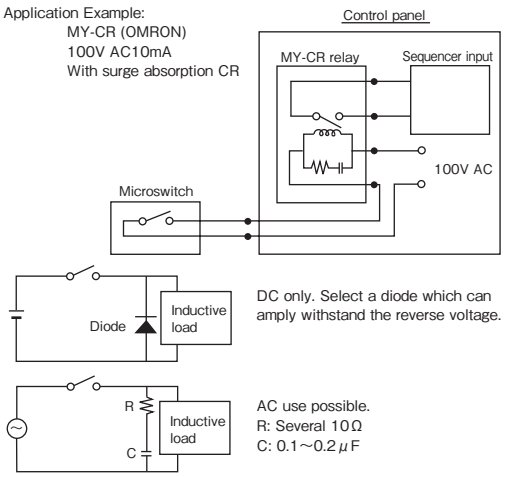
Remarks

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_2 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.

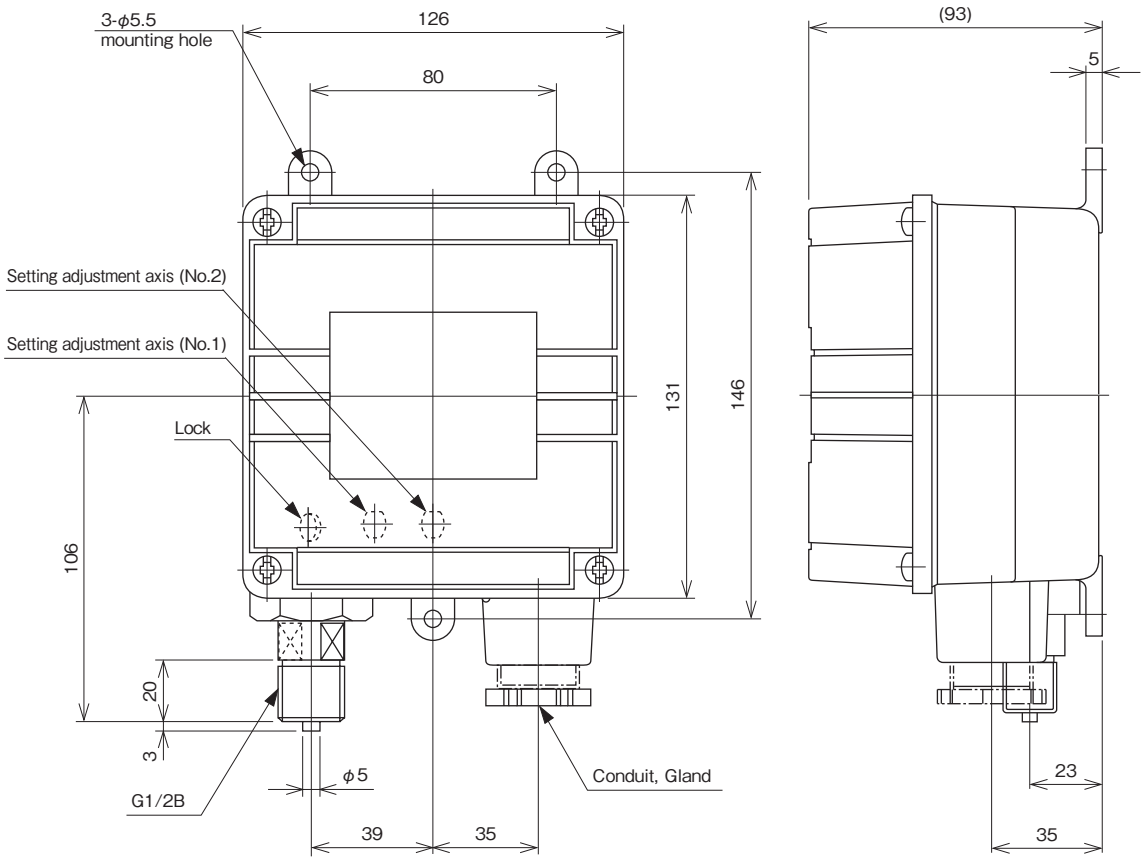
2. Insertion of contact protection circuit

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.

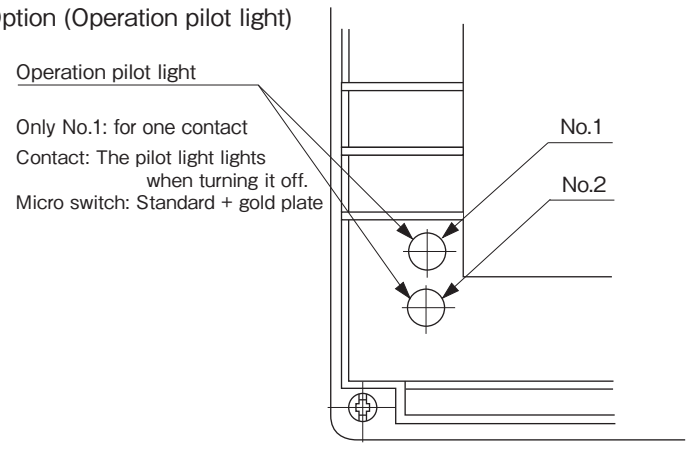


Dimensions

Unit: mm



Option (Operation pilot light)



Gland	JIS20b
Conduit	G3/4

Model number configuration

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

Model

C Q 3 0	—			3	—							×	×	×	×	×	
Pressure Switch		①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮

Model number		Selective spec.	Additional spec. (Option)

① Mounting

1	Panel mounting, Water-proof type, 1 contact
2	Panel mounting, Water-proof type, 2 contacts

② Connection

3	G3/8B	K	1/4NPT
4	G1/2B	L	3/8NPT
F	R1/4	M	1/2NPT
G	R3/8		Others
H	R1/2		

③ Wetted parts materials

3	Socket: SCS14, Bourdon tube: SUS316

Please specify the pressure range and units separately besides selection of range code.

④ Pressure range (MPa)

1	0～0.2, 0.4
2	0～0.6, 1, 1.5, 2, 2.5, 3.5, 5, 7
3	0～10, 15, 25, 35
4	0～50, 70
5	-0.1～0.2, 0.4, 0.6, 1, 1.5, 2

⑤ Type of contacts / quantity of switch

A	Upper limit type with 1 contact
B	Lower limit type with 1 contact
C	Upper & lower limit type with 2 contacts
D	Upper limit type with 2 contacts
E	Lower limit type with 2 contacts
F	Reverse upper limit type with 1 contact
G	Reverse lower limit type with 1 contact
H	Reverse upper & lower limit type with 2 contacts
J	Reverse upper limit type with 2 contacts
K	Reverse lower limit type with 2 contacts
L	Upper & reverse lower limit type with 2 contacts
M	Reverse upper & lower limit type with 2 contacts
N	Upper & reverse upper limit type with 2 contacts
P	Lower & reverse lower limit type with 2 contacts

⑥ Switch

0	Standard type
1	Ultra high sensitivity type
3	Standard + gold plated
4	Ultra high sensitivity type + gold plated

⑦ Outlet for electric wire

	Conduit type
C	G3/4 female (Standard)
	Others
	Gland type
7	JIS 20b (Standard)
	Others

⑧ Treatment

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

⑨ Additional specifications

0	Nil
1	Required (Please specify the desired documents separately.) ・With check terminal ・Operation lamp with LED (24V DC), 1 contact ・Operation lamp with LED (24V DC), 2 contacts ・Operation lamp with neon lamp (110V AC), 1 contact ・Operation lamp with neon lamp (110V AC), 2 contacts ・Operation lamp with neon lamp (220V AC), 1 contact ・Operation lamp with neon lamp (220V AC), 2 contacts ・Coating specification

Range of recommended pressure setting
Upper limit type: (10%max.P.+Dead band)～90%max.P.
Lower limit type: 10%max.P.～(90%max.P.−Dead band)
Compound: %max.P. → %F.S.

Manufacturing range
・Accuracy: ±1% max.P. (Compound: ±1%F.S.)
・Setting system: Internal adjustment type, with setting lock
・It becomes other model number with check terminal and operation pilot light.

○Please set it compared with the master gauge and the standard pressure gauge when setting.

⑮Documents

0	Nil
1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, inspection procedure, mill sheet, test report (1 pc 1 copy), inspection / traceability certificate, strength calculation, attended inspection

※Specify "X" if there is no specification item.