



CQ50 Pressure switch CD50 Explosion-Protected Construction Pressure Switch

OUTLINE

In this pressure switch, the force applied to the bellows is balanced with the range spring through the rod, and its move directly functions the microswitch, making the switch open and close.

FEATURES

- With the application of a Bellebille spring, this pressure switch demonstrates excellent vibration resistance and durability. (Double snap action mechanism) This mechanism has been applied to the one contact type of CD50.
- Pressure switch CQ50 has been designed to minimize the dead-band.
- An aluminum die-cast case is applied to pressure switch CD50, realizing a switch with light weight.

* In case of selecting pressure gauge, choose the pressure range which can be used in between 30 ~ 65% of full scale, so that the gauge can give its full capacity.

SPECIFICATION 1

Model:

CQ50 Drip-proof construction
CD50 Explosion-proof (d2G4)

Fluid:

Gas or liquid

Operating condition:

CQ50

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

CD50

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

Mounting:

Panel mounting, 2B pipe mounting

Connection:

G3/8B(PF), G1/2B(PF), Rc1/4(PT female),
Rc1/2(PT female), R1/2(PT), 1/4NPT, 1/2NPT

* For other connections, please contact us.

Wetted parts material:

Bellows 316Lst.st.
Socket-tank 316st.st. (For range 0.7MPa or less
but SCS14 for range 0.1MPa.)
SCS14 (For range 1 ~ 3MPa.)
Gasket PTFE

Pressure range:

CQ50

0.005 ~ 0.05 → 0.3 ~ 3MPa (0.05 ~ 0.5 → 3 ~ 30kgf/cm²)
-0.1 ~ 0MPa (-1 ~ 0kgf/cm²)

CD50

0.01 ~ 0.05 → 0.6 ~ 3MPa (0.1 ~ 0.5 → 6 ~ 30kgf/cm²)
-0.1 ~ 0MPa (-1 ~ 0kgf/cm²)

Proof-pressure:

0.15 ~ 4.5MPa (1.5 ~ 45kgf/cm²)
(Depending on range)

Operating temperature:

CQ50 -20 ~ 60°C
CD50 -5 ~ 40°C

Accuracy:

1%max.P.

Temperature coefficient:

0.05%max.P./°C

Dead band:

0.0013 ~ 0.36MPa or less (0.013 ~ 3.6kgf/cm² or less)
(Depending on model, range or number of contact)

Switch:

Micro switch

Number of contact :

One contact or two contact (CQ50 is simultaneous operation)

Setting system:

External adjustment type With setting lock

SPECIFICATION 2

Outlet for electric wire:

CQ50 Gland JIS 20a, JIS 20b, JIS 20c

CD50 Conduit type or flame-proof packing type

Case material-finishing:

Aluminium alloy die casting(ADC12)-Gray

Construction:

CQ50 Drip-proof type (IP43)

CD50 Outdoor type (IP54)

Weight:

CQ50 Approx. 3.5kg

CD50 Approx. 4.2kg

Electric characteristics:

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

Pressure range & dead band-proof-pressure:

CQ50

Pressure range MPa(kgf/cm ²) (Pressure setting range)	Dead band MPa(kgf/cm ²)		Proof-pressure MPa(kgf/cm ²)
	One contact	Two contact	
-0.1~0 (-1~0)	0.003 or less (0.03 or less)	0.0045 or less (0.045 or less)	0.15 (1.5)
0.005~0.05 (0.05~0.5)	0.0013 or less (0.013 ")	0.002 or less (0.02 ")	0.075 (0.75)
0.01~0.1 (0.1~1)	0.0025 or less (0.025 ")	0.004 or less (0.04 ")	0.15 (1.5)
0.02~0.2 (0.2~2)	0.005 or less (0.05 ")	0.008 or less (0.08 ")	0.3 (3.0)
0.04~0.4 (0.4~4)	0.01 or less (0.1 ")	0.016 or less (0.16 ")	0.6 (6.0)
0.07~0.7 (0.7~7)	0.018 or less (0.18 ")	0.028 or less (0.28 ")	1.05 (10.5)
0.1~1 (1~10)	0.025 or less (0.25 ")	0.04 or less (0.4 ")	1.5 (15.0)
0.15~1.5 (1.5~15)	0.038 or less (0.38 ")	0.06 or less (0.6 ")	2.2 (22.0)
0.2~2.1 (2~21)	0.053 or less (0.53 ")	0.084 or less (0.84 ")	3.0 (30.0)
0.3~3 (3~30)	0.075 or less (0.75 ")	0.12 or less (1.2 ")	4.5 (45.0)

Note: In case of two contact type, it rises with correspondence of simultaneous operation.

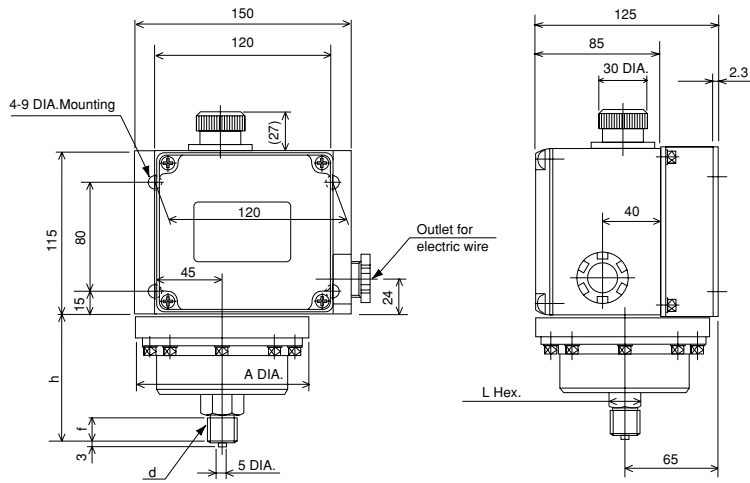
CD50

Pressure range MPa (kgf/cm ²) (Pressure setting range)	Dead band MPa(kgf/cm ²)		Proof-pressure MPa(kgf/cm ²)
	One contact	Two contact	
-0.1~0 (-1~0)	0.006 or less (0.06 or less)	0.012 or less (0.12 or less)	0.15 (1.5)
0.01~0.05 (0.1~0.5)	0.003 or less (0.03 ")	0.006 or less (0.06 ")	0.075 (0.75)
0.02~0.1 (0.2~1)	0.006 or less (0.06 ")	0.012 or less (0.12 ")	0.15 (1.5)
0.04~0.2 (0.4~2)	0.012 or less (0.12 ")	0.024 or less (0.24 ")	0.3 (3.0)
0.08~0.4 (0.8~4)	0.024 or less (0.24 ")	0.048 or less (0.48 ")	0.6 (6.0)
0.12~0.6 (1.2~6)	0.036 or less (0.36 ")	0.072 or less (0.72 ")	0.9 (9.0)
0.14~0.7 (1.4~7)	0.042 or less (0.42 ")	0.084 or less (0.84 ")	1.05 (10.5)
0.2~1 (2~10)	0.06 or less (0.6 ")	0.12 or less (1.2 ")	1.5 (15.0)
0.4~2 (4~20)	0.12 or less (1.2 ")	0.24 or less (2.4 ")	3.0 (30)
0.6~3 (6~30)	0.18 or less (1.8 ")	0.36 or less (3.6 ")	4.5 (45.0)

Note: In case of two contact type, setting difference of H side, L side is max. 60 % max.P.

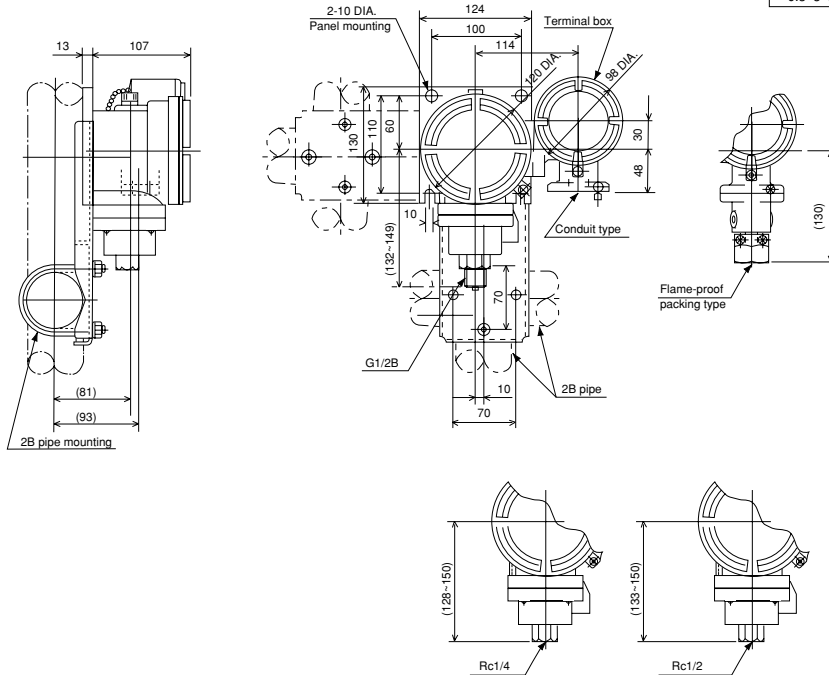
DIMENSIONS

CQ50



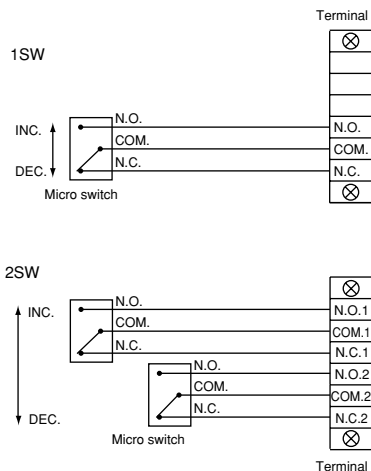
Pressure range MPa (kgf/cm ²)	d	h	f	L Hex.	A DIA.
-0.1~0 (-1~0)	G3/8B	(91)	18	19	90
	G1/2B, R1/2, 1/2NPT	(93)	20	24	
0.005~0.05 (0.05~0.5)	G3/8B	(83)	18	19	120
	G1/2B, R1/2, 1/2NPT	(85)	20	24	
0.01~0.1 (0.1~1)	G3/8B	(78)	18	19	100
	G1/2B, R1/2, 1/2NPT	(80)	20	24	
0.02~0.2 (0.2~2)	G3/8B	(78)	18	19	90
	G1/2B, R1/2, 1/2NPT	(80)	20	24	
0.04~0.4 (0.4~4)	G3/8B	(83)	18	19	75
	G1/2B, R1/2, 1/2NPT	(85)	20	24	
0.07~0.7 (0.7~7)	G3/8B	(85)	18	19	75
	G1/2B, R1/2, 1/2NPT	(87)	20	24	
0.1~1 (1~10)	G3/8B	(68)	18	30	75
	G1/2B, R1/2, 1/2NPT	(70)	20	30	
0.3~3 (3~30)	Rc1/4	(71)		30	

CD50

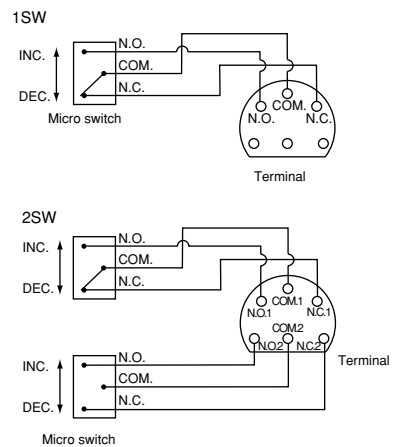


WIRING

CQ50



CD50



EXPLOSION-PROOF

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. Our pressure transmitter manufactured under this basic policy are widely used in the measurement, alarm, and control of pressure in factories and business offices where combustible gases or the vapor of combustible liquids having a flash point of 40°C or less may exist.

Application range: d2G4

Explosion-protected construction: d

Explosion class: 2 (Minimum gap with 25mm length of patch which permits the flame propagation: 0.4mm to 0.6mm)

Ignitability: G4 (Ignition point: 135°C to 200°C, limits of temperature rise: 70 deg)

Hazardous areas: Zone 1 or zone 2

Objective industries: Petrochemical, chemical fibersynthetic resin, ethylene, methanol, dielectric products manufacturing, liquefied gas, electric furnace, pharmaceuticals, paints, ammonium sulfate, soda, other which there is the danger of ignition and explosion.

Classification of hazardous areas:

Hazardous areas	Contents
Zone 0	A place where hazardous atmosphere is continuously present or present for a long period under ordinary circumstances.
Zone 1	A place where hazardous atmosphere is likely to occur under ordinary circumstances.
Zone 2	A place where hazardous atmosphere is likely to occur under abnormal circumstances.

Registered model for labor ministry inspection and approval number: (CD50)

Registered model for labor ministry inspection:

CD50-1, CD50-2

Approval number for labor ministry inspection:

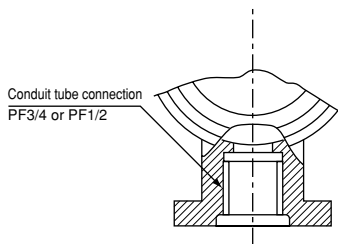
One contact No.25229

Two contact No.25230

It is official approval number to represent that explosion-protected construction pressure switch conformed to explosion proof standard. It is national official approval which is examined and authorized by technology institution of industrial safety.

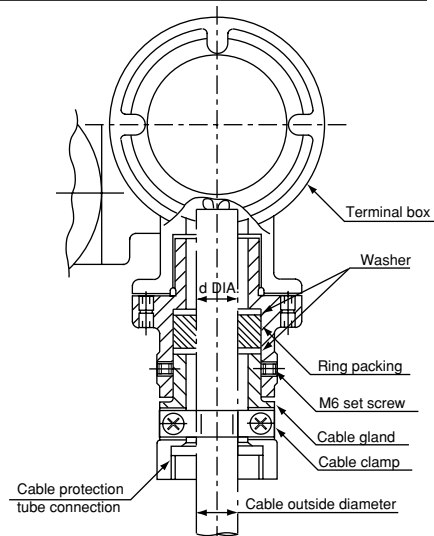
METHODS OF LEADING EXTERNAL CONDUCTORS AND CABLE IN TO A TERMINAL BOX

Conduit type



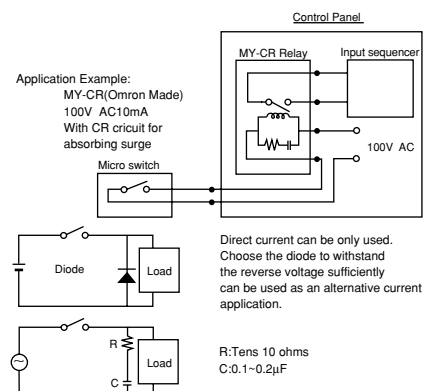
Flame-proof packing type

Packing inside (d) DIA.	Application cable out side DIA.	Protection tube connection
10.5	9.4	PF ^{1/2} PF ^{3/4}
	9.9	
	10.1	
12	10.5	
	11.0	
	11.5	
14	11.9	PF ^{3/4} PF1
	12.0	
	12.5	
	12.6	
15.5	13.1	
	13.5	
	13.6	
	14.5	
16.5	15.6	



REMARKS

- As a sequencer input; Use this switch in the ventilated condition. Otherwise the following might be caused. The contact resistance of the microswitch increases gradually as time passes. For the application in the atmosphere, especially including Si, SiO₂ will be accumulated on the contact part as switch operated. Then the contact resistance will be increased, so that switch may be not operated. Therefore, above is suggested for the application condition, including Si atmosphere. When you use this switch as sequencer input for controlling, input or connect through 100V AC Relay.
- Installation of protection circuit for contact In the inductive load open and close circuit, install the protection circuit to protect the contact. When you use the relay, choose the built-in protection circuit for the contact.

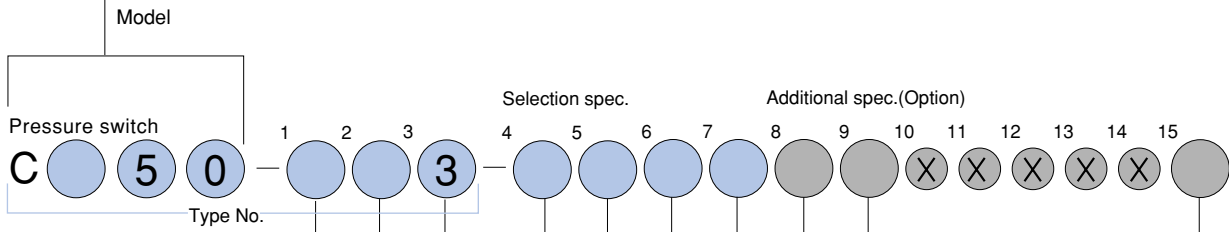


Type No. constitution

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	Q	5	0	Drip-proof construction
C	D	5	0	Explosion-proof



1 Mounting (Construction) In case of CQ50

3	Drip-proof type one contact
4	Drip-proof type two contact

1 Mounting (Methods of leading external conductors and cable in to a terminal box.) In case of CD50

1	One contact, panel mounting, conduit type
2	Two contact, panel mounting, conduit type
3	One contact, panel mounting, flame-proof packing type
4	Two contact, panel mounting, flame-proof packing type
5	One contact, 2B pipe mounting, conduit type
6	Two contact, 2B pipe mounting, conduit type
7	One contact, 2B pipe mounting, flame-proof packing type
8	Two contact, 2B pipe mounting, flame-proof packing type

2 Connection

3	G3/8B (CQ50 only)
4	G1/2B
7	Rc1/4
9	Rc1/2 (At the time CD50)
H	R1/2
K	1/4NPT (CD50 only)
M	1/2NPT
V	Rc1/2 (At the time CQ50)

3 Wetted parts material

3	Bellows: 316Lst.st. Tank, socket: 316st.st., SCS14 Gasket: PTFE
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4 Pressure range In case of CQ50
(When ordering, please specify pressure range & unit.)

1	-0.1 ~ 0MPa
2	0.005 ~ 0.05MPa
3	0.01 ~ 0.1, 0.02 ~ 0.2, 0.04 ~ 0.4MPa
4	0.07 ~ 0.7, 0.1 ~ 1, 0.15 ~ 1.5 0.2 ~ 2.1, 0.3 ~ 3MPa

4 Pressure range In case of CD50
(When ordering, please specify pressure range & unit.)

1	-0.1 ~ 0MPa
2	0.01 ~ 0.05MPa
3	0.2 ~ 0.1, 0.04 ~ 0.2, 0.08 ~ 0.4 0.12 ~ 0.6, 0.14 ~ 0.7MPa
4	0.2 ~ 1, 0.4 ~ 2, 0.6 ~ 3MPa

5 Type of contact

1	H : Upper limit type with one contact
2	L : Lower limit type with one contact
3	HL : Upper and lower limit type with two contact (CD50 only)
4	2H : Upper limit type with two contact (CD50)
5	2L : Lower limit type with two contact (CD50)
I	WH : Simultaneous operation upper limit type with two contact (CQ50)
J	WL : Simultaneous operation lower limit type with two contact (CQ50)

9 Other additional spec.

0	Nil
1	Please specify your requirement Case finishing

8 Treatment

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

In case of CQ50

7 Outlet for electric wire (Gland)

6	JIS 20a
7	JIS 20b
8	JIS 20c

In case of CD50

7 Outlet for electric wire

In case of conduit type

2	PF1/2 female
3	PF3/4 female(Standard)
4	PF1 female

7 Outlet for electric wire

In case of flame-proof packing type

0	PF1/2 female × 10.5
1	PF1/2 female × 12
2	PF3/4 female × 10.5
3	PF3/4 female × 12
4	PF3/4 female × 14
5	PF3/4 female × 15.5
6	PF3/4 female × 16.5
7	PF1 female × 14
8	PF1 female × 15.5
9	PF1 female × 16.5

6 Switch

0	Standard type
1	Ultra high sensitivity switch (CD50 only)
3	Standard+gold plated
4	Ultra high sensitivity switch+gold plated (CD50 only)

15 Document

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