CKD

New Products

New product

3 Port Direct Acting Valve
3QRA1•3QRB1 Series

Quick release by larger flow rate and quicker response

QUICK

Quick transmission between vacuum and atmospheric release

Large flow rate

C: **0.4** ($dm^3/s \cdot bar$) large flow rate

C: **0.3** ($dm^3/s \cdot bar$) standard

Quick response

4±1ms/ 1.5±1ms (ON / OFF)

QUALIFIED

Qualified for various applications

- Low-concentration ozone proof (Rubber raw material FKM/HNBR used)
- Compatible with RoHS directive
- Restriction by copper material (Air flow path and sliding section)

QUALITY

Quality and high performance with downsizing and good maintainability

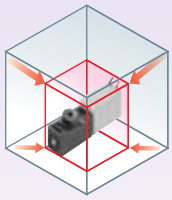
Compact and light in weight

19g (lightest in the industry)

10mm (W) × **20mm** (H) × **46** (D)

In-house comparison

Volume: **1/2** or less



In-house comparison

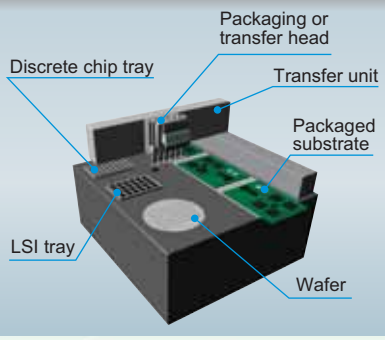
Weight: Approx. **1/3**

Service life

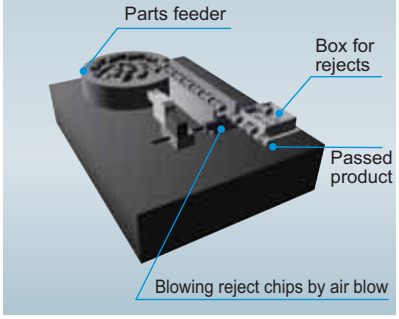
100million times and over

(Tested under strict conditions of CKD standard)

Transfers electric parts by suction.

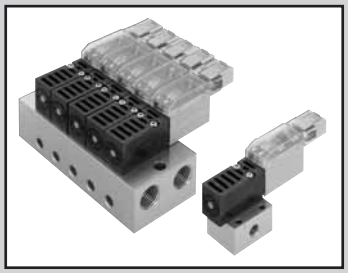


ON/OFF control of air blow



CKD Corporation

CC-1020A 1



3 port direct acting valve

Discrete valve body porting and sub-plate porting

3QRA·3QRB Series

Individual wiring manifold, body porting and sub-plate porting

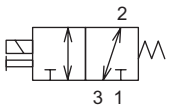
M3QRA·M3QRB Series

● Applicable cylinder bore size: Φ16 to Φ40

RoHS

JIS symbol

● 2-position universal type



Port Nos. 1, 2, and 3 indicate
Port 1: P, NC
Port 2: A, COM
Port 3: R, NO
respectively.

Common specifications

Descriptions	Descriptions
Type of valve / operation method	Direct acting poppet valve
Working fluid	Compressed air and low vacuum
Max. working pressure MPa	0.70
Min. working pressure MPa	Low vacuum: -100KPa
Withstanding pressure Mpa	1.05 (low vacuum: -101 KPa)
Max. working pressure differential MPa	0.70
Ambient temperature °C	-5 to 50 (no freezing)
Fluid temperature °C	5 to 50
Lubrication	Not available *
Protective structure	Dust proof
Vibration/shock m/s^2	50 or less/300 or less
Working environment	Containing corrosive gas is impermissible.

*Lubrication will deteriorate the performance.

Electric specifications

Descriptions		Standard specifications	Large flow rate specifications H
Rated voltage V	DC	24, 12	
Rated energization		Intermittent *1	Continuous
Voltage fluctuation range		±10%	
Starting current A	24 VDC	-	0.13
	12 VDC	-	0.27
Holding current A	24 VDC	0.08	0.10
	12 VDC	0.17	0.20
Power consumption W		2.0	2.4 *2
Heat proof class		B	

*1: 5 min for continuous energizing, 50% or less for energization ratio
*2: 3.2 W for 20 ms after start.

Individual specifications

Descriptions		3QRA1	3QRB1	M3QRA1	M3QRB1
Port size	Port 1	M5		Rc1/8	
	Port 2			M5	
	Port 3			Rc1/8	
Response time Note 1 ON/OFF ms		4±1/1.5±1			
Weight g		24	27	19 (discrete solenoid valve)	

Note 1: Response time is the value for continuous operation under the condition of 0.5 MPa supply pressure and 20°C.

Flow characteristics

Model no.	Option	Port 1 → 2		Port 2 → 1		Port 2 → 3		Port 3 → 2	
		C [$dm^3/(s \cdot bar)$]	S (references) [mm^2]	C [$dm^3/(s \cdot bar)$]	S (references) [mm^2]	C [$dm^3/(s \cdot bar)$]	S (references) [mm^2]	C [$dm^3/(s \cdot bar)$]	S (references) [mm^2]
3QRA1	Blank	0.30	1.5	0.32	1.6	0.32	1.6	0.30	1.5
	H	0.36	1.8	0.38	1.9	0.38	1.9	0.36	1.8
3QRB1	Blank	0.30	1.5	0.34	1.7	0.36	1.8	0.34	1.7
	H	0.36	1.8	0.40	2.0	0.40	2.0	0.40	2.0
M3QRA1	Blank	0.30	1.5	0.32	1.6	0.32	1.6	0.30	1.5
	H	0.36	1.8	0.38	1.9	0.38	1.9	0.36	1.8
M3QRB1	Blank	0.30	1.5	0.34	1.7	0.36	1.8	0.34	1.7
	H	0.36	1.8	0.40	2.0	0.40	2.0	0.40	2.0

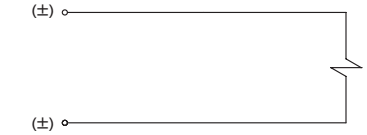
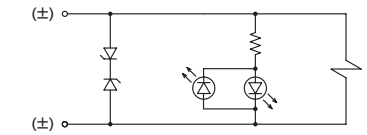
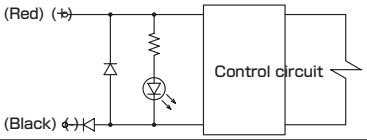
Ozone specifications

Conforms to low-concentration ozone specifications as standard.

Secondary battery specifications

Conforms to our P4 series equivalent specifications as standard.

Electric connection circuit diagram

Voltage type	Option	Electric wire circuit diagram	Wiring method
DC	-		Grommet lead wire (blank) Not polarized
	With surge suppressor and light		C-connector (C2*·C3) D-connector (D2*·D3) Not polarized
	Large flow rate with surge suppressor and light		C-connector (C2*·C3) D-connector (D2*·D3) With polarity

CKD

How to order

• Discrete solenoid valve

3QRB1 1 0 - M5 - D2 ○ —— 3

• Discrete solenoid valve

3QRB1 1 9 - 00 - D2 ○ —— 3

• Manifold

M3QRA1 1 0 - M5 - C2 ○ - 8 - 3

Ⓐ Model No.
Ⓑ Solenoid position
Solenoid valve type
Solenoid valve
Ⓒ Port size
Ⓓ Electric connection
Ⓔ Flow
Ⓕ Station number
Ⓖ Voltage

		Ⓐ Model No.			
		Discrete		Manifold	
		Body porting	Sub plate porting	Body porting	Sub plate porting
Symbol	Descriptions	3QRA1	3QRB1	M3QRA1	M3QRB1
Ⓑ Solenoid position					
1	2-position single solenoid (self reset)	●	●	●	●
8	Mix manifold Note 2			●	●
Ⓒ Port size					
M5	M5	●	●	●	●
Ⓓ Electric connection					
Grommet lead wire					
Blank	Grommet lead wire (300 mm) Note 1	●	●	●	●
C-connector (axial lead wire)					
C2	Lead wire (300 mm) with surge suppressor and light	●	●	●	●
C20	Lead wire (500 mm) with surge suppressor and light	●	●	●	●
C21	Lead wire (1000 mm) with surge suppressor and light	●	●	●	●
C22	Lead wire (2000 mm) with surge suppressor and light	●	●	●	●
C3	No lead wire with surge suppressor and light	●	●	●	●
D-connector (radial lead wire)					
D2	Lead wire (300 mm) with surge suppressor and light	●	●	●	●
D20	Lead wire (500 mm) with surge suppressor and light	●	●	●	●
D21	Lead wire (1000 mm) with surge suppressor and light	●	●	●	●
D22	Lead wire (2000 mm) with surge suppressor and light	●	●	●	●
D3	No lead wire with surge suppressor and light	●	●	●	●
Ⓔ	**Flow**				
Blank	Standard 2W	●	●	●	●
H	Large flow rate 3.2W → 2.4W	●	●	●	●
Ⓕ Station number					
2 to 20	2-station / 20-station			●	●
Ⓖ Voltage					
3	24 VDC	●	●	●	●
4	12 VDC	●	●	●	●

Note on model No. selection

Note 1: For electric connection with the grommet lead wire (300 mm), the large flow rate (H) model of Ⓔ flow rate size is not selectable.

Note 2: Combination with a masking plate
Combination of an A and B type can not be made.

<Example of model number>

M3QRA110-M5-C2-7-3

Ⓐ Model: M3QRA1 (body porting)
Ⓑ Solenoid position : 2-position single solenoid
Ⓒ Port size : M5
Ⓓ Electric connection: Lead wire 300 mm
With surge suppressor and light
Ⓔ Flow : Standard 2W
Ⓕ Station number : 7-station
Ⓖ Voltage : 24 VDC

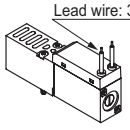
How to order masking plate kit

3QR1 - MP - KIT

*Gasket and set screw attached

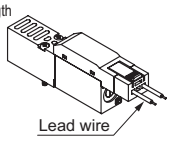
Electric connection

Blank Grommet lead wire

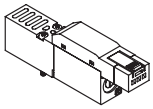


C2 C-connector with lead wire, with surge suppressor and light

• Lead wire length
C2 : 300 mm
C20: 500mm
C21: 1000mm
C22: 2000mm

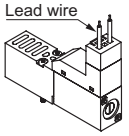


C3 C-connector No lead wire with surge suppressor and light

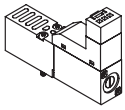


D2 D-connector with lead wire, with surge suppressor and light

• Lead wire length
D2 : 300mm
D20: 500mm
D21: 1000mm
D22: 2000mm



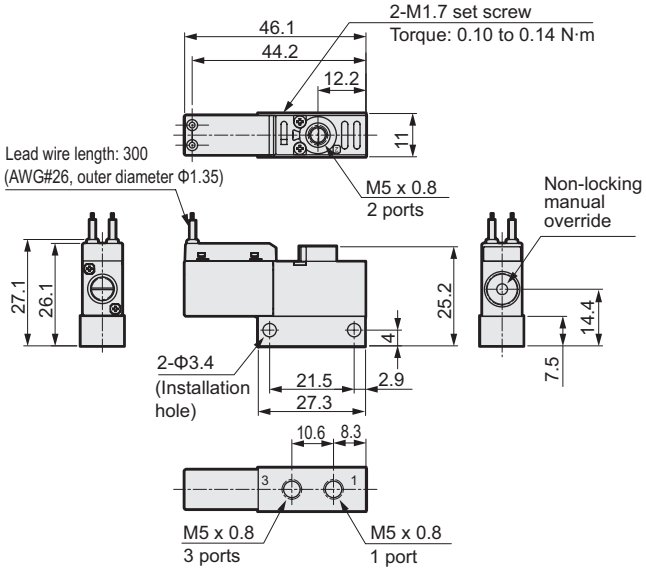
D3 D-connector without lead wire, with surge suppressor and light



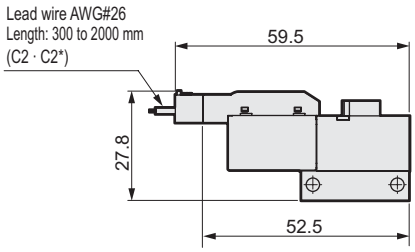
Dimensions

3QRA110-M5

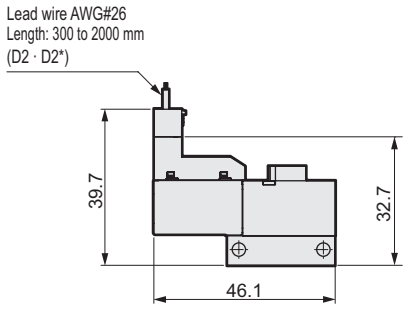
• 2-position single solenoid: Grommet lead wire



• C-connector (C2·C3)

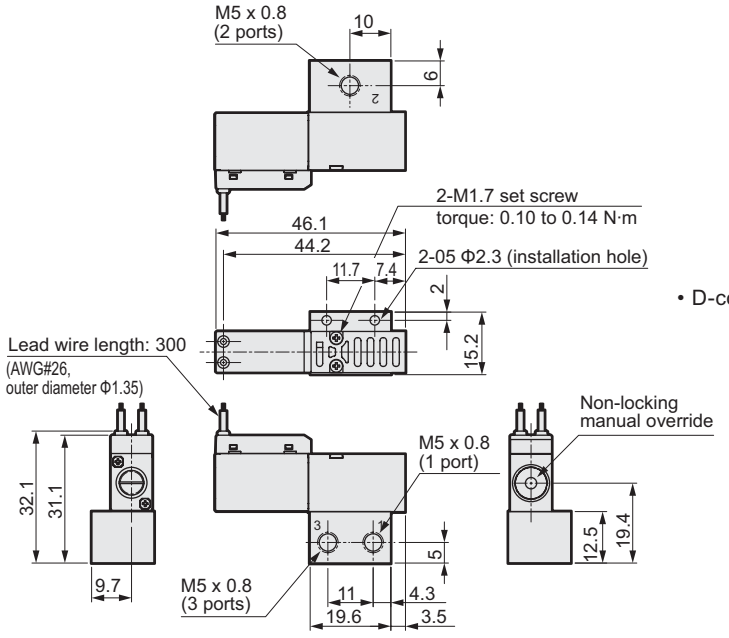


• D-connector (D2·D3)

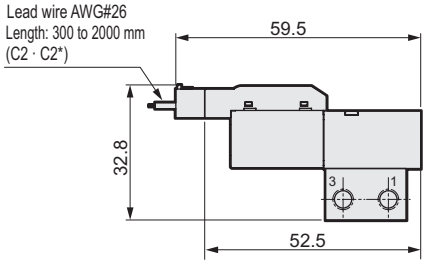


3QRB110-M5

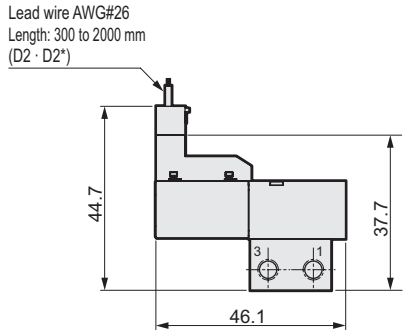
• 2-position single solenoid: Grommet lead wire



• C-connector (C2·C3)

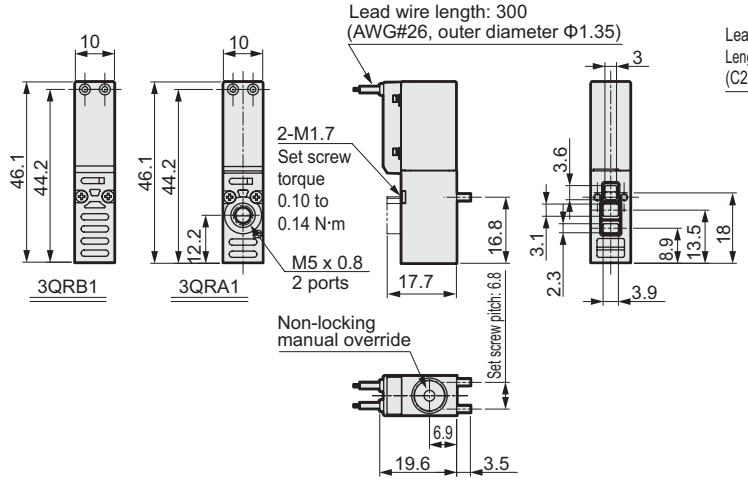


• D-connector (D2·D3)

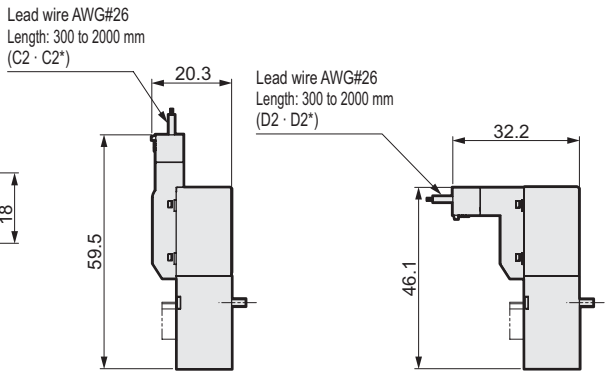


3QRA/B119-00 (discrete solenoid valve)

• 2-position single solenoid: Grommet lead wire



• C-connector (C2·C3) • D-connector (D2·D3)

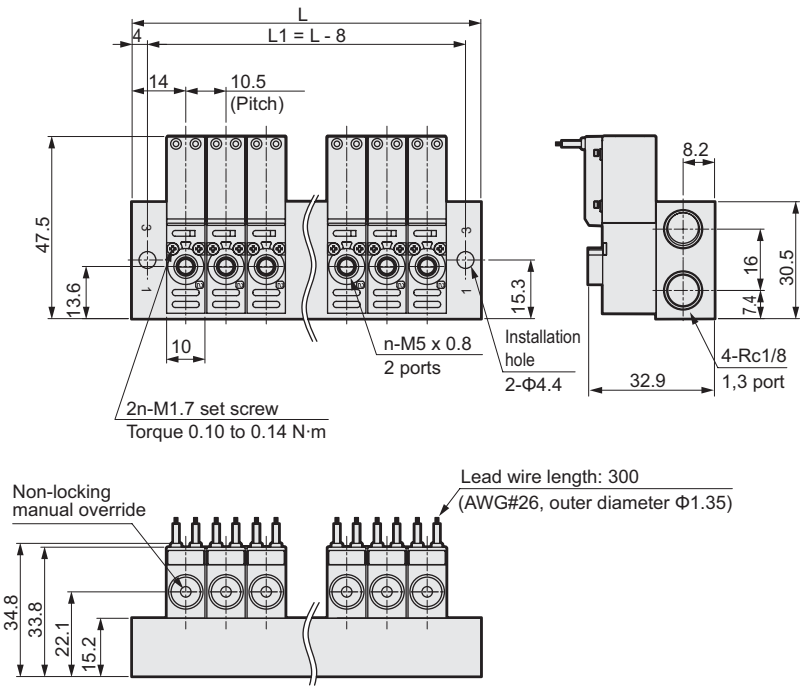


CKD

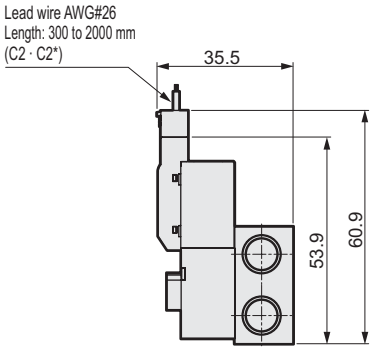
Dimensions

M3QRA110-M5

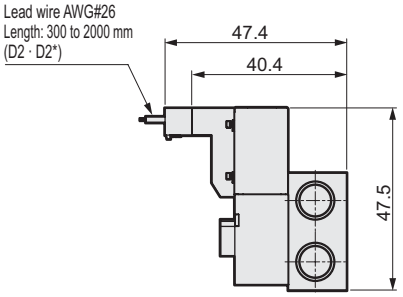
• 2-position single solenoid: Grommet lead wire



• C-connector (C2·C3)

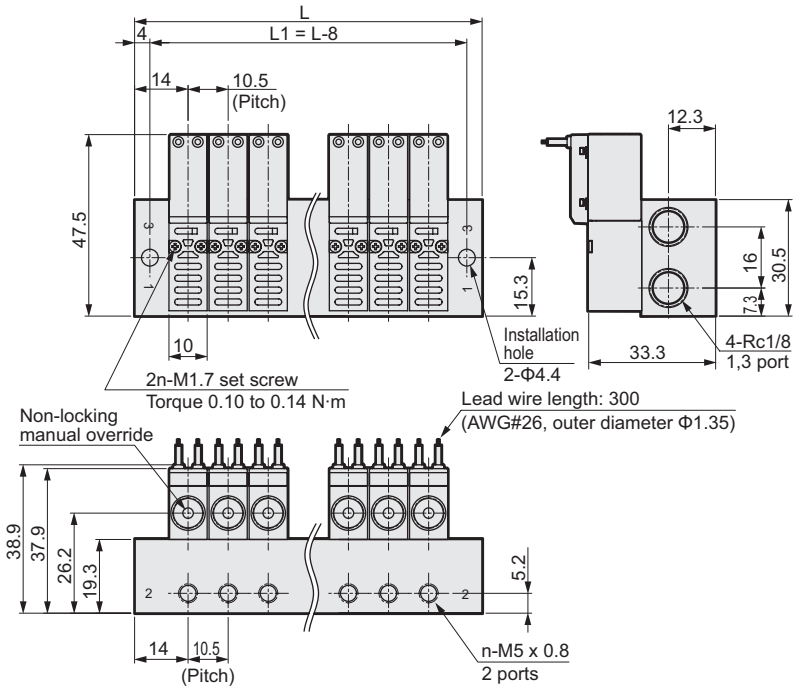


• D-connector (D2·D3)

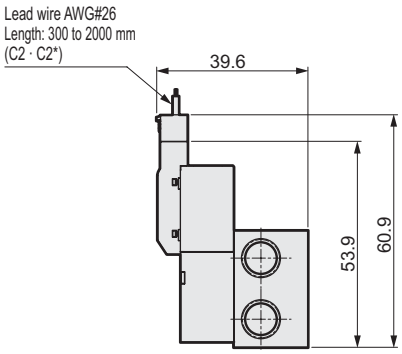


M3QRB110-M5

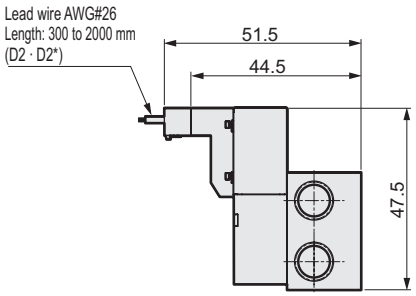
• 2-position single solenoid: Grommet lead wire



• C-connector (C2·C3)



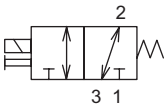
• D-connector (D2·D3)



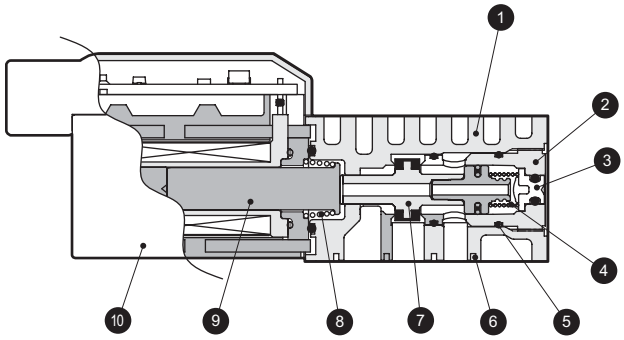
Station number	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	38.5	49.0	59.5	70.0	80.5	91.0	101.5	112.0	122.5	133.0	143.5	154.0	164.5	175.0	185.5	196.0	206.5	217.0	227.5
L1	30.5	41.0	51.5	62.0	72.5	83.0	93.5	104.0	114.5	125.0	135.5	146.0	156.5	167.0	177.5	188.0	198.5	209.0	219.5

Internal structure and parts list

● 2-position single solenoid



Port Nos. 1, 2, and 3 indicate
Port 1: P, NC
Port 2: A, COM
Port 3: R, NO
respectively.



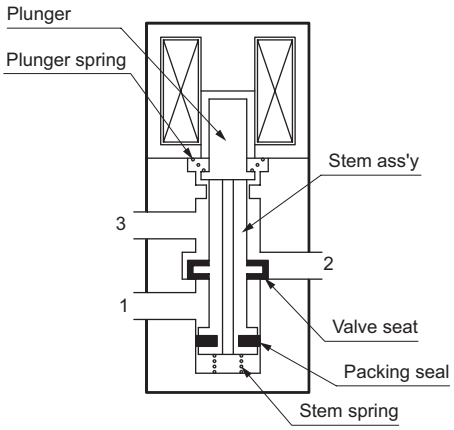
Main parts list

No.	Parts name	Material
1	Body (body)	Resin
2	Body (plug)	Resin
3	Manual button	Resin
4	Valve spring	Stainless steel
5	O ring	Fluoro rubber
6	Body gasket	Fluoro rubber
7	Valving element	Aluminum, hydrogenated nitrile rubber
8	Plunger spring	Stainless steel
9	Plunger	Stainless steel
10	Coil assembly	-

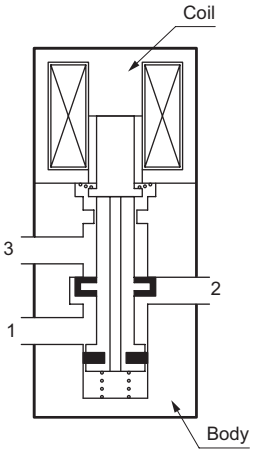
Operational principle

3QR series structure is a pressure balance type poppet valve, which is not affected by the working pressure and achieves a low wattage large flow rate performance.
Port can be pressurized from either 1, 2 or 3 port.
The diameters of valve seat and packing seal of stem assembly are same. Since pressure differentials of each port are stabilized by through hole of stem assembly, pressure is well balanced during both ON and OFF.

● When de-energized
The stem assembly is pushed toward port 1 side by the plunger spring force transmitted by the plunger.
Valve seat and packing seal of stem assembly close port 1, while open port 2 and 3.



● When energized
When energizing the coil, the plunger is sucked toward the coil side, while the stem assembly is moved by the stem spring force. This opens port 1 and 2, but closes port 3.



Safety precautions Also read the safety precautions of "Pneumatic valves (No. CB-023S)".

Design & Selection

1. Common

⚠WARNING

■ A mesh filter is built in the 2(A) port as standard to prevent foreign substance from being suctioned into the pipe, but it cannot remove fine dust particles. When using this in the vacuum condition, install a vacuum filter between the pad nozzle and the valve.

■ Do not use this as a solenoid valve for emergency shut down.
If left pressurized for a long time, the starting response could be delayed.

■ Follow the items below when installing the solenoid valve to the base which is not supplied from CKD.

- A solenoid valve installation pitch shall be 10.5 mm and over.
- A base material shall be aluminum.

For other applications than the above, contact us because heat dissipation must be considered.

2. Surge suppressor

■ The surge suppressor attached to the solenoid valve is intended to protect output contacts for solenoid valve drive. There is no significant protection for the other peripheral devices, and devices could be damaged or malfunction by the surge. Surge generated by other devices could be absorbed and which may result in an accident such as burning. Care must be taken for points below.

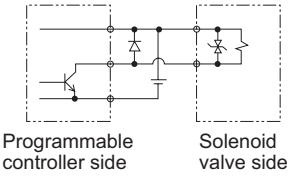
(1) The surge suppressor functions to limit a solenoid valve surge voltage, which can reach several hundred V, to a low voltage level that the output contact can withstand. Depending on the output circuit used, this may be insufficient and could result in damage or malfunction. Check whether the surge suppressor can be used by the surge voltage limit of the solenoid valve in use, the output device's withstand pressure and circuit structure, and by the degree of return delay time.

If necessary, provide other surge measures. The inverse voltage surge generated when OFF can be suppressed to the following levels.

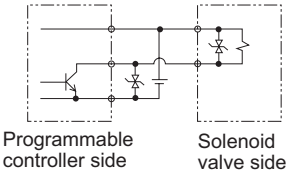
Rated voltage	Reverse voltage value when power turned OFF
12 VDC	Approx. 27V
24 VDC	Approx. 47V

(2) When using the NPN type output unit, the voltage given in the left table and a surge voltage equivalent to the power voltage could be applied on the output transistor. Increase the contact protection circuits in this case.

(example of output transistor protective circuit installation 1)



(example of output transistor protective circuit installation 2)



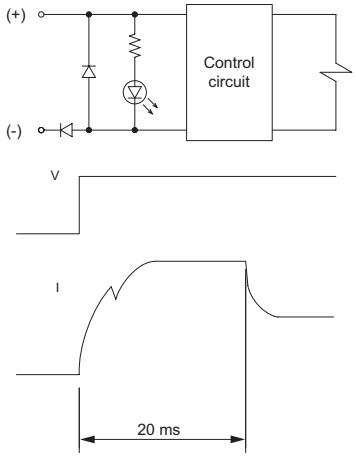
(3) If another device or solenoid valve is connected in parallel to the solenoid valve, reverse voltage surge generated during the solenoid valve is off is applied to these devices. Even when using the solenoid valve with surge suppressor for 24 VDC, the surge voltage may reach minus several ten V depending on the model. This inverse polarity voltage could damage or cause the other devices connected in parallel to malfunction. Avoid parallel connection of devices suspected of reversing polarity voltages, e.g., LED indicators.
When driving several solenoid valves in parallel, the surge from other solenoid valves could enter the surge suppressor of one solenoid valve with a surge suppressor. Depending on the current value, that surge suppressor could burn.
When driving several solenoid valves with surge suppressors in parallel, surge current could concentrate at the surge suppressor with the lowest limit voltage and cause similar burning. Even if the solenoid valve type is the same, the surge suppressor's limit voltage can be inconsistent, and in the worst case, could result in burning. Avoid driving several solenoid valves in parallel.

(4) The surge suppressor incorporated in the solenoid valve often short-circuits if damaged by excessive voltage or current the other solenoid valves. If the surge suppressor fails, if a large current flows when output is on, the output circuit or solenoid valve could be damaged or ignite. Do not keep power on in a faulty state.
Provide an overcurrent protection circuit on the power or drive circuit or use a power supply with overcurrent protection so that a large current does not flow continuously.

3. Large flow rate type

⚠CAUTION

■ Do not use in the environment where vibration or impact exceeding the specification is applied. This may result in valve faulty operation.
The large flow rate type includes a current control circuit, which is designed to reduce a current value when the coil is sucked and held. Only plus common polarity is used.



During Use & Maintenance

⚠CAUTION

■ Coil may become hot due to ambient temperature or energizing time. Be careful enough when touching the valve.

■ Long energizing time causes performance deterioration of the solenoid valve.
Care must be taken as to the following items especially for the standard flow rate type

- Energizing time shall be set equal to or less than the de-energizing time at intermittent energizing.
- One energizing time shall be set to 5 minute or less.
- Set so that the peripheral temperature of the solenoid valve does not exceed max. working temperature.

■ Apply adequate torque when connecting pipes.

- To prevent air leak and to protect threads from damage. Tighten by hand first, then use a tool, to prevent screw thread damaged.

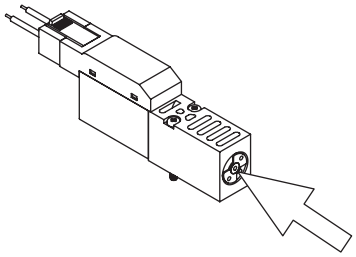
Port thread	Tightening torque N•m
M5	1.0 to 1.5
Rc1/8	3 to 5

■ Tighten the solenoid valve with an appropriate torque when installing it.

- Excessive tightening may damage the valve. Tightening torque 0.10 to 0.14 N•m
- Use the sequence No. 0 driver.

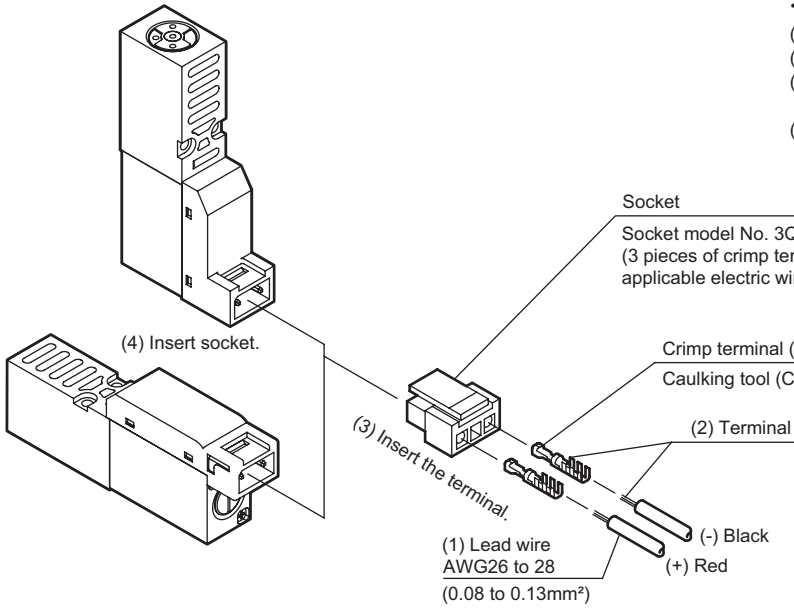
■ Manual override

Pushing the manual override can switch the main valve to the solenoid position when energized. Push the manual override from the front using a thin-tipped tool such as a precise screw driver. Pushing it in a slanting manner may result in incomplete position switching and cause internal leakage. To work normally, once detach the tool and press it again from the front.



C-/D-connector wiring methods

Referring to the figure below, wire the connector according to the procedures (1) to (4).



<Procedure>
(1) Peel the sheath at the end of the lead wire by 2 to 3 mm.
(2) Crimp the lead wire with a dedicated tool.
(3) Insert the terminal into holes on both ends of the socket.
(Note) There is an orientation for insertion.
(4) Insert the socket into the solenoid valve connector section.

Note: Pay attention to the polarity of ⊕/⊖for the option H (Large flow rate) specification.
An incorrect polarity will not result in a short-circuit, but the valve will not operate.

M3QRA•B1 How to prepare manifold specification sheet

● Manifold model No.

M3QRA • (B) 1 [8] 0 − M5 − [C2] [H] − [8] − [3]

Piping type | Note 1 | Port size | Electric connection | Option | Station number | Voltage

Note 1: Combination of the above-specified points is not acceptable. Specify by a model number.

Part name	Model No.	Layout																				Quantity
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Valve	3QRA119-□																					
	3QRB119-□	○	○	○		○	○	○														6
Masking plate	3QR1-MP				○				○													2

Preparing the manifold specifications

● Complete from the left end, with the piping port facing forward.
● Different manifold specifications are used for each model, so fill out corresponding specifications.

M3QRA•B1 manifold specification sheet

Issue / /

Your company name

Contact messrs.

Purchase order No.

● Contact ● Quantity set ● Request date month day

Slip No.	Order No.

● Manifold model No.

M3QR [A•B] 1 [ ] 0 − M5 − [ ] [ ] − [ ] − [ ]

Note 1 | Port size | Electric connection | Option | Station number | Voltage

Note 1: Combination of the above-specified points is not acceptable. Specify by a model number.

Part name	Model No.	Layout																				Quantity
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Valve	3QRA119-□																					
	3QRB119-□																					
Masking plate	3QR1-MP																					

If the goods and their replicas, or the technology and software in this catalog are to be exported, laws require the exporter to make sure they will never be used for the development or the manufacture of weapons for mass destruction.

CKD Corporation
＜Website＞
http://www.ckd.co.jp/

Head Office • Plant	2-250, Ouji, Komaki, Aichi 485-8551	TEL(0568)77-1111	FAX(0568)77-1123
Sales And Marketing Div.	2-250, Ouji, Komaki, Aichi 485-8551	TEL(0568)74-1303	FAX(0568)77-3410
Overseas Sales Administration dpt. Overseas Business div.	2-250, Ouji, Komaki, Aichi 485-8551	TEL(0568)77-1338	FAX(0568)77-3461
Tokyo Branch Office	4F, Bunkahousou Media Plus, 1-31-1, Hamamatsu-cho, Minato-ku, Tokyo 105-0013	TEL(03)5402-3620	FAX(03)5402-0120
Nagoya Branch Office	2-250, Ouji, Komaki, Aichi 485-8551	TEL(0568)77-1356	FAX(0568)77-3317
Osaka Branch Office	1-3-20, Tosabori, Nishi-ku, Osaka 550-0001	TEL(06)6459-5770	FAX(06)6446-1945

CKD

New Products

4F2/3 Series
Outdoor specifications option

New Product

Overview

- Suitable for outdoor use
  Accelerated weathering test (sunshine weather meter): Cleared 1,000 h
  Combined cycle corrosion test: Cleared 960h
- Conforms to IP65 (compliance standard: IEC/EN 60529)
- Now with a more durable terminal box cover seal structure
- Equipped with stainless steel set screw

RoHS

Added outdoor specifications option to 4F2/3 series

Product specifications

Common specifications

Descriptions		
Valve type and operation method		Pilot operated spool valve
Working fluid		Compressed air
Max. working pressure	MPa	1.0
Min. working pressure MPa	2 position	0.1
	3 position	0.15
Withstanding pressure		1.5
Ambient temperature	℃	-10 to 60 Note1
Fluid temperature	℃	5 to 60
Lubrication		Not required Note 2
Protective structure		IP65
Vibration/impact	m/s^2	50 or less/300 or less
Working environment		Containing corrosive gas is impermissible

Note 1. Ambient temperature refers to the temperature for storage and installation, and differs from fluid temperature, which applies during operation.
Note 2. Use turbine oil ISO VG32 for lubrication.

Flow characteristics

Model no.	Solenoid position		Port size	Sonic conductance C[$dm^3/(s \cdot bar)$]	Critical pressure ratio b
4F2	2 position	Single	Rp1/4	3.0	0.33
		Double			
	3 position	All ports closed		2.5	0.43
		A/B/R connection			
4F3	2 position	Single	Rp1/4	3.9	0.42
		Double			
	3 position	All ports closed		4.0	0.35
		A/B/R connection		4.5	0.42
		P/A/B connection		4.0	0.35
	2 position	Single	Rp3/8	5.8	0.42
		Double			
	3 position	All ports closed		4.4	0.42
		A/B/R connection		5.1	0.46
		P/A/B connection		4.4	0.42

Note 4: Effective sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

Electric specifications

Descriptions			
Rated voltage V	AC		100, 200 (50/60 Hz) Note 3
	DC		12.24
Rated voltage fluctuation range			±10%
Starting current A	AC	100V	0.170/0.140
		200V	0.090/0.070
	DC	12V	0.500
		24V	0.250
Holding current A	AC	100V	0.100/0.080
		200V	0.050/0.040
	DC	12V	0.500
		24V	0.250
Power consumption W	AC	100V	5.0/4.0
		200V	5.0/4.0
	DC	12V	6.0
		24V	6.0
Heat proof class			B (molded coil)

Note 3. The 100 VAC 50/60 Hz rated voltage can be used at 110 VAC 60 Hz, and 200 VAC 50/60 Hz can be used at 220 VAC 60 Hz.

Please make sure to read the precautions in the latest "Pneumatic Valves" (Catalog No. CB-023SA) before use.

CKD Corporation
CC-1070A

How to order

4F2 | 1 | 0 | - | 08 | - | M2 | B | W | ( ) | - | AC100V

Symbol	Descriptions	4F2	4F3
Ⓐ Model no.			
4F2	4F2 series	●	
4F3	4F3 series		●
Ⓑ Solenoid position			
1	2-position single solenoid	●	●
2	2-position double solenoid	●	●
3	3-position all ports closed	●	●
4	3-position A/B/R connection	●	●
5	3-position P/A/B connection		●
Ⓒ Port size Note 1			
08	Rp1/4	●	●
10	Rp3/8		●
Ⓓ Manual override Note 2			
Blank	Locking (resin)	●	●
M2	Non-locking (metal)	●	●
M3	Locking with manual lever (resin)	●	●
Ⓔ Electric connection			
B1	Round terminal box (G3/4)	●	●
B	Round terminal box (G1/2)	●	●
BL	Round terminal box (G1/2) with light Note 3	●	●
G	Round terminal box (G1/2) With gland (A-15a)	●	●
GL	Round terminal box (G1/2) with light Note 3 Gland attached (A-15a)	●	●
Ⓕ Other options			
Blank	No option	●	●
S	Surge suppressor (variable resistor) attached	●	●
H	Check valve attached (Applicable to only 3-position all ports closed)	●	●
N	Plug attached (3 port valve)	●	●
NC	3 way valve with plug assembly (C1:A, E1:R1)	●	●
NO	3 way valve with plug assembly (C2:B, E2:R2)	●	●
Ⓖ Voltage			
AC100V	100 VAC 50/60Hz	●	●
AC200V	200 VAC 50/60Hz	●	●
AC110V	110 VAC 50/60Hz	●	●
AC220V	220 VAC 50/60Hz	●	●
DC12V	12 VDC Note 3	●	●
DC24V	24 VDC	●	●
∗ Other custom order			
DC48V	48 VDC	●	●
DC100V	100 VDC	●	●
DC110V	110 VDC	●	●

Note on model no. selection

Note 1: Rc threads and NPT threads are available for the piping port threads.
Contact CKD for information.
Note 2: When using in conditions completely exposed to the outdoors, select non-locking manual override M2 (metal material).
Metal locking manual override is available as custom made.
Contact CKD for information.
Note 3: 12 VDC is not available with BL or GL with lamp.
Note 4: Option for manifold is not available.

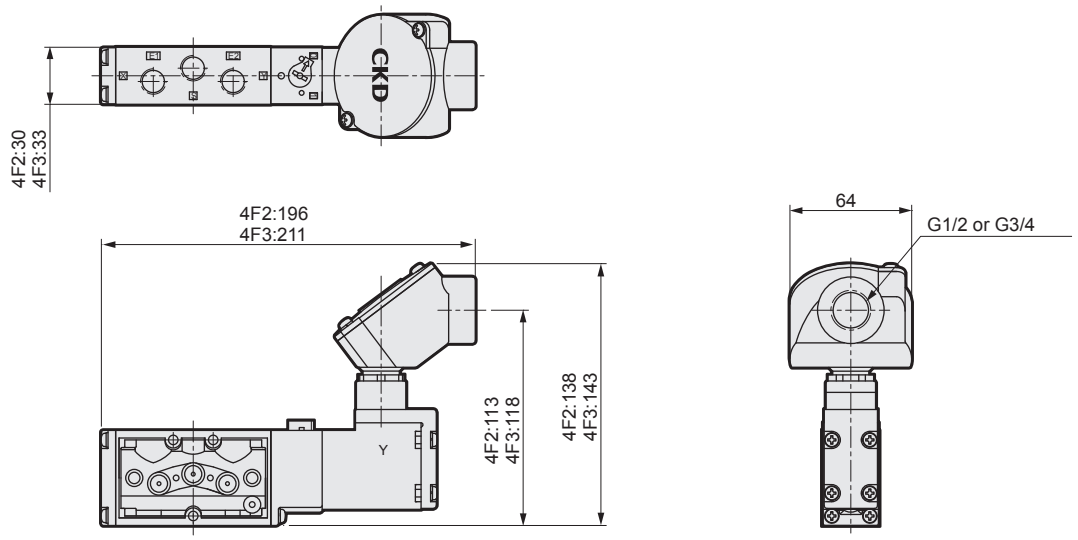
Precautions

- Do not plug in the PE port. It can cause malfunctions because pilot pressure cannot be released.
- Connection ports use Rp threads (parallel pipe thread)
  Secure with sealing tape or apply adhesive when connecting ports to prevent leakage during piping.
- If used outdoors, do not release the exhaust port (E1, E2, PE ports) into the atmosphere. Take measures so that debris, particles, rain, etc. does not get inside the main body.
  Also, take waterproofing measures for electric wire (such as cable gland).
- After product delivery, do not change terminal box's conduit direction. There is a risk of water contacting live parts.
- This product's external parts are corrosion resistant to typical working environments.
  However, when used in special conditions, possibility of problems such as corrosion occurring in a short period can increase.
  Please contact CKD if using in special conditions.

Dimensions

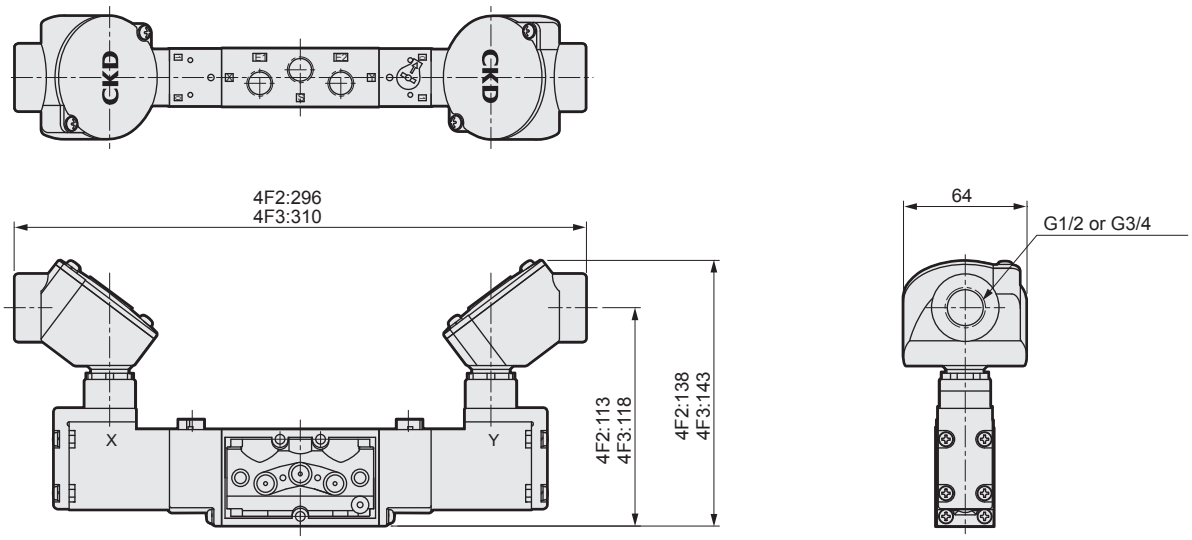
4F210/4F310

● 2 position single solenoid: round terminal box w/o light



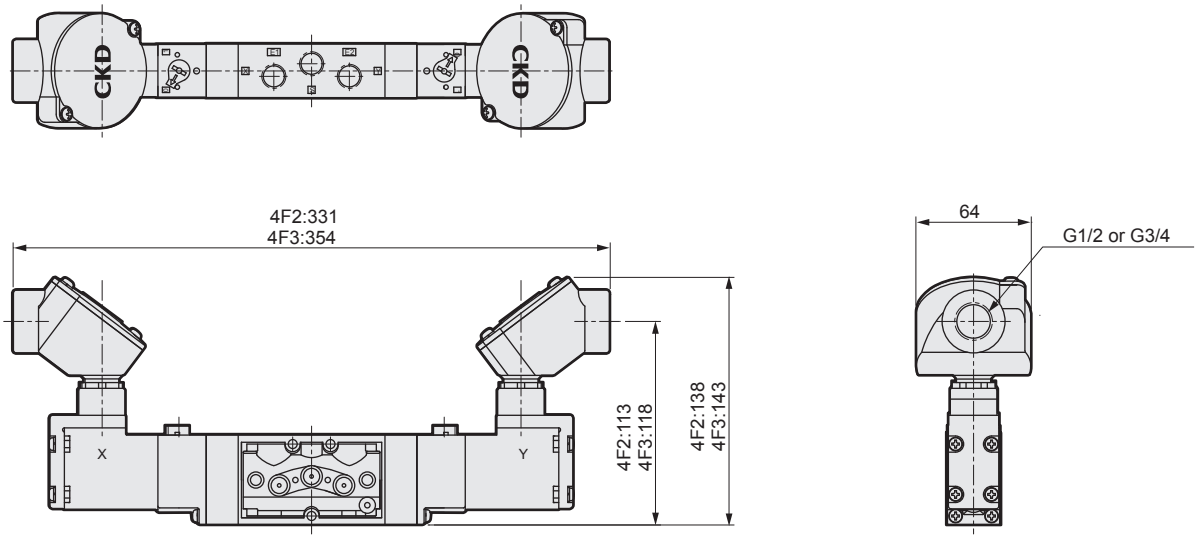
4F220/4F320

● 2 position double solenoid: round terminal box w/o light



4F2$^{3}_{4}$0/4F3$^{3}_{5}$0

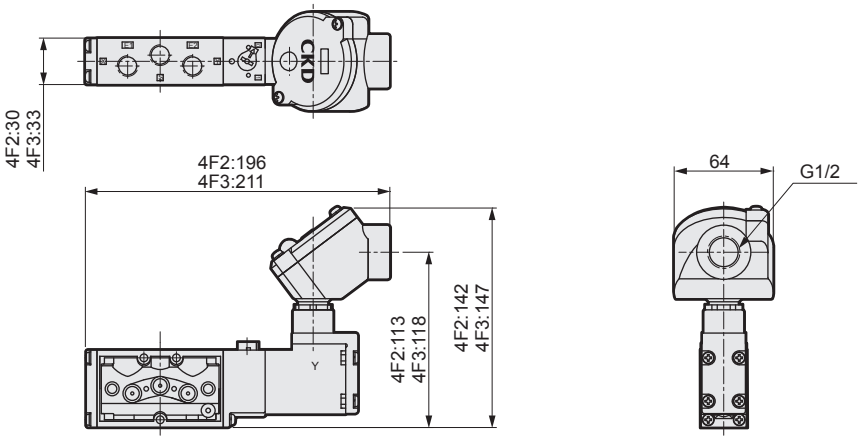
● 3 position: round terminal box w/o light



Dimensions

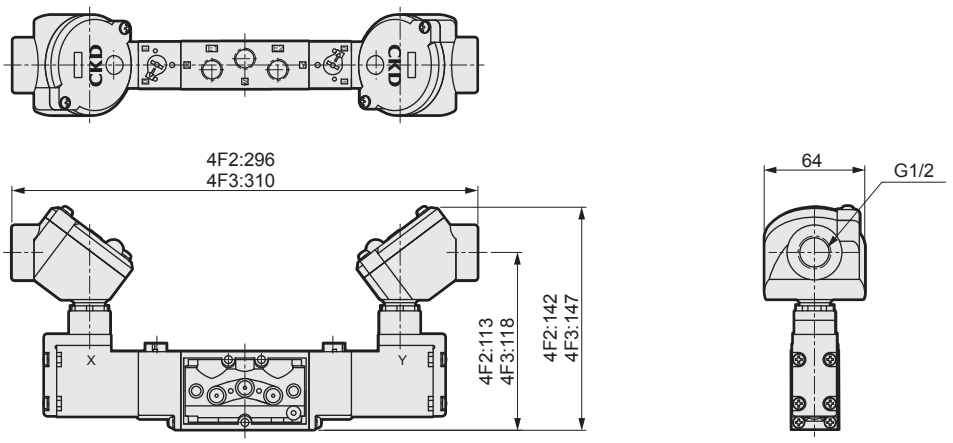
4F210/4F310

● 2 position single solenoid: round terminal box w/light



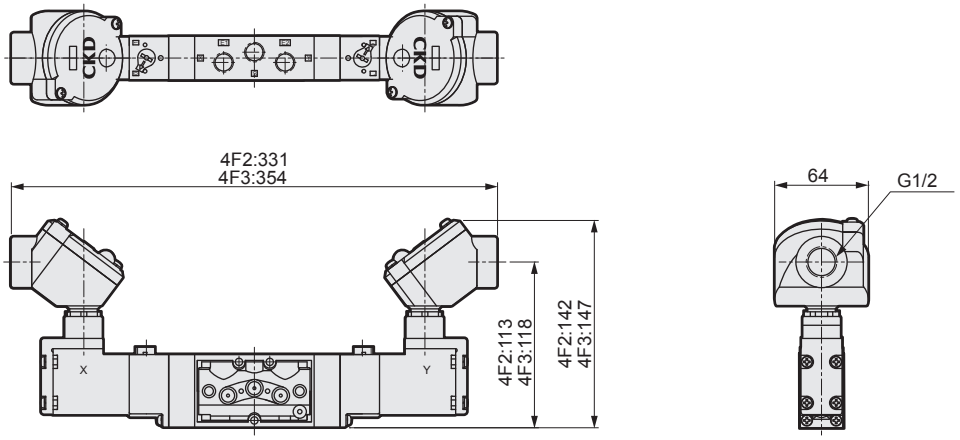
4F220/4F320

● 2 position double solenoid: round terminal box w/light



4F2$^{3}_{4}$0/4F3$^{3}_{5}$0

● 3 position: round terminal box w/light



CKD Corporation

＜Website＞
http://www.ckd.co.jp/

Head Office•Plant	2-250, Ouji, Komaki, Aichi 485-8551	TEL(0568)77-1111 FAX(0568)77-1123
Sales And Marketing Div.	2-250, Ouji, Komaki, Aichi 485-8551	TEL(0568)74-1303 FAX(0568)77-3410
Overseas Sales Administration dpt.	2-250, Ouji, Komaki, Aichi 485-8551	TEL(0568)74-1338 FAX(0568)77-3461
Tokyo Branch Office	4F, Bunkahousou Media Plus, 1-31-1, Hamamatsu-cho, Minato-ku, Tokyo 105-0013	TEL(03)5402-3620 FAX(03)5402-0120
Nagoya Branch Office	2-250, Ouji, Komaki, Aichi 485-8551	TEL(0568)74-1356 FAX(0568)77-3317
Osaka Branch Office	1-3-20, Tosabori, Nishi-ku, Osaka 550-0001	TEL(06)6459-5770 FAX(06)6446-1945