Transmitters: Relay Valve

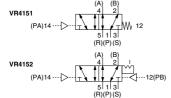
RoHS

VR4151/4152 Series

Appropriate output
sequences are affected
according to the signal
received from the
mechanical valve.
It is equivalent to the
auxiliary relay of an
electrical system.



Symbol



↑ Precautions

Be sure to read this before I handling the products. Refer to I page 8 for safety instructions I and pages 9 to 15 for 3/4/5 port I solenoid valve precautions.

Environment

Operate the valve in an area in which the vibration does not exceed 5 G. Vibrations could cause the valve to malfunction.

Specifications

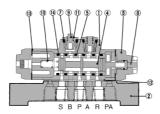
Fluid			Air						
Operating	pressure	9	0 to 1.0 MPa						
Pilot press	sure			0.15 to	1.0 MPa				
Ambient a	nd fluid	temperature	-5 t	o 60°C (No freezi	ng)			
Flow rate characteristics			C[dm3/(s-bar)]	1)	Cv			
	Side	1(P) ↔2(B)/4(A)	1.6	0.15		0.38			
	ported	2(B)/4(A) ↔3(S)/5(R)	1.5	0	.2	0.36			
	Bottom	1(P) ↔2(B)/4(A)	1.6	0	.2	0.38			
	ported	2(B)/4(A) ↔3(S)/5(R)	1.5	0.	25	0.36			
Port size				1,	/8				
Weight			Side porte	d		350 g			
weignt	weignt			ed	300 g				
Lubricatio	n		Not required (Use turbine oil Class 1 ISO VG32, if lubricated.)						

Model

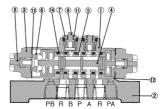
Function	Sub-plate	Model	Indicator
	M//	VR4151-00-0	-
	W/o sub-plate	VR4151-00-1	0
Single pilot	W/ sub-plate	VR4151-01A-0	_
Sirigle pilot	Side piping	VR4151-01A-1	0
	W/ sub-plate	VR4151-01B-0	
	Bottom piping	VR4151-01B-1	0
		VR4152-00-0	
	W/o sub-plate	VR4152-00-1	0
Double pilot	W/ sub-plate	VR4152-01A-0	_
Double pilot	Side piping	VR4152-01A-1	0
	W/ sub-plate	VR4152-01B-0	
	Bottom piping	VR4152-01B-1	0

Construction

VR4151



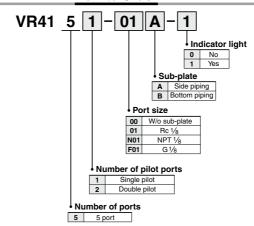
VR4152



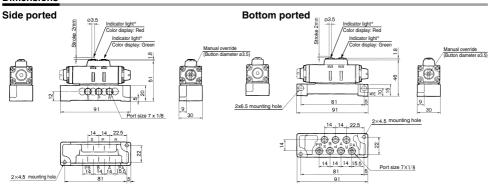
Component Parts

No.	Description	Material	No.	Description	Material
1	Valve	ADC	8	Manual button	POM
2	Sub-plate	ZDC	9	Piston	POM
3	Pilot cover	ADC	10	Spring	Steel
4	Spool	Stainless steel	11	Spring	Stainless steel
5	Sleeve	Stainless steel	12	Gasket	NBR
6	Detent assembly		13	Gasket	NBR
7	Piston cover	Brass	14	O-ring	NBR

How to Order



Dimensions



* When "no indicator light" is selected, the plug is attached.

Transmitters: Shuttle Valve

RoHS

VR1210/1220 Series

Relay valves for controlling the pneumatic signal lines.

This valve is also called "OR valve". As the air is supplied to either IN side, it is output from the OUT side. When the air pressure levels are different, the air with higher pressure flows to the OUT side.



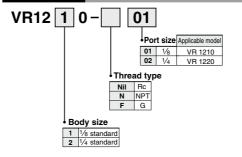
Symbol



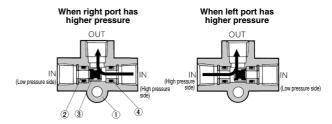
Model/Specifications

Mo	del	VR1210-01	VR1220-02				
Max. operating	pressure	1.0 MPa					
Min. operating	pressure	0.05	MPa				
Ambient and flu	uid temperature	-5 to 60°C (No freezing)					
Flow rate	C[dm³/(s·bar)]	1.3	2.9				
characteristics	b	0.2	0.2				
Port size		1/8	1/4				
Weight		24 g	45 g				

How to Order



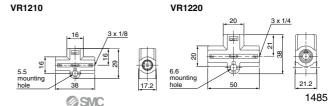
Construction



Component Parts

No.	Description	Material	Note	No.	Description	Material	Note
1	Valve body	ADC	Platinum silver	3	Valve	Brass, NBR	
2	Valve guide	Brass		4	O-ring	NBR	

Dimensions



Transmitters:

Shuttle Valve with One-touch Fittings

VR1210F/1220F Series

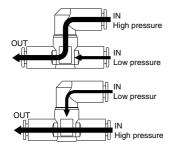


Relay valves for controlling pneumatic signal lines



Mounting example Holder/TMH series (Click here for details.)

When the difference in input air pressure between two IN sides is 0.05 MPa or more, the air with higher pressure constantly flows to the OUT side.





Model

	Applicable tubing O.D.											
Model		N	Metric siz	ze		Inch size						
	3.2	4	6	8	10	1/8"	5/32"	1/4"	5/16"	3/8"		
VR1210F	•	•	•	•		•	•	•	•			
VR1220F			•	•	•			•	•	•		

Specifications

Proof pressure	1.5 MPa				
Max. operating pressure	1.0 MPa				
Min. operating pressure	0.05 MPa				
Ambient and fluid temperature	-5 to 60°C (No freezing)				
Applicable tubing material (1)	Nylon, Soft nylon, Polyurethane				

Note 1) Use caution about the maximum operating pressure when soft nylon and polyurethane is used. (Refer to the **Web Catalog**.)

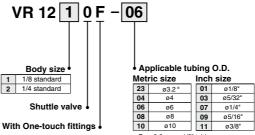
Note 2) Brass components are all electroless nickel plated as standard.

(Copper-free and fluorine-free)

Flow rate characteristics

	Model		VR1	210F	VR1220F			
Applicable	Metric size	ø3.2	ø4	ø6	ø8	ø6	ø8	ø10
tubing O.D.	Inch size	ø1/8"	ø5/32"	ø1/4"	ø5/16"	ø1/4"	ø5/16"	ø3/8"
Flow rate	C[dm3/(s-bar)]	0.5	0.7	1.3	1.5	1.4	2.1	3.1
characteristics	b	0.25	0.25	0.25	0.25	0.25	0.25	0.25

How to Order

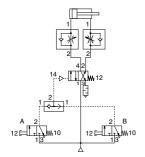


* For ø3.2, use ø1/8" tubing

Example of Operating Circuit

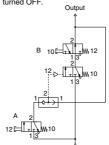
OR circuit

 If either A or B is turned ON, cylinder is actuated.



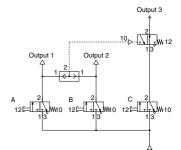
Self-hold circuit

- 1. If A is turned ON, the output turns ON.
- 2. Even though A is turned OFF, the output remains in ON state.
- 3. If B is turned ON in 2. state, the output is turned OFF.

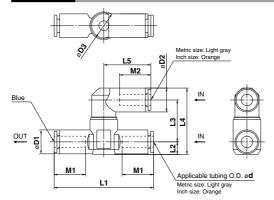


Interlock circuit

- When either A or B is turned ON, even though C turns ON, the output 3 will not be turned ON.
- Only when both A and B are in OFF state, if C turns ON, the output 3 is turned ON.



Dimensions



Metric Size

	Model	d	D1	D2	D3	L1	L2	L3	L4	L5	М1	M2	Weight (g)	Compatible holder Note)
VR	1210F-23	3.2	11.4	8.4		52	6.2	19.4	29.8	17.5	12.7	12.9	21.4	TMH-06J
VR	1210F-04	4	11	10.4	14.8	53	6	20.3	31.5	21.9	16.5	15.8	15.6	_
VR	1210F-06	6	12.8	12.8	14.8	53.2	6.7	22.5	35.6	25.2	16.8	16.8	23.0	TMH-06
VR	1210F-08	8	15.2	15.2	1	60.4	8	22.5	38.2	28.2	18.7	18.7	24.0	TMH-08
VR	1220F-06	6	12.8	12.8		59	7.4	23.9	37.7	25.2	16.8	16.8	27.2	TMH-06
VR	1220F-08	8	15.2	15.2	19.8	65	8.2	23.9	39.7	28.2	18.7	18.7	31.9	TMH-08
VR	1220F-10	10	18.5	18.5]	71.6	9.8	25.8	44.8	31	20.8	20.8	43.2	TMH-10

Inch Size

IIIOII OILC													
Model	d	D1	D2	D3	L1	L2	L3	L4	L5	M1	M2	Weight (g)	Compatible holder Note)
VR1210F-01	1/8"	11.4	8.4		52	6.2	19.4	29.8	17.5	12.7	12.9	21.4	TMH-06J
VR1210F-03	5/32"	11	10.4	14.8	53	6	20.3	31.5	21.9	16.5	15.8	15.6	_
VR1210F-07	1/4"	13.2	13.2	14.0	54.4	7	22.5	36.2	25.6	16.8	16.8	23.5	TMH-07
VR1210F-09	5/16"	15.2	15.2]	60.4	8	22.5	38.2	28.2	18.7	18.7	24.0	TMH-09
VR1220F-07	1/4"	13.2	13.2		59	7.4	23.9	37.9	25.6	16.8	16.8	31.4	TMH-07
VR1220F-09	5/16"	15.2	15.2	19.8	65	8.2	23.9	39.7	28.2	18.7	18.7	31.9	TMH-09
VR1220F-11	3/8"	17.9	18.5	1	69.8	9.4	25.8	44.5	31	20.8	20.8	53.0	

Note) It is possible to use a TMH series holder to secure the VR12. The compatible models and holder models are shown above.



Transmitters:

AND Valve with One-touch Fittings

VR1211F Series



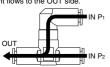
Relay valves for controlling pneumatic signal lines



Mounting example Holder/TMH series (Click here for details.)

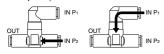
Only when air is supplied to both P1 and P2 does air flow to the OUT side.

When air pressure differs, pressure in the lower amount flows to the OUT side.



If air is supplied only to either P_1 or P_2 , it does not flow to the OUT side.

Note) Air may flow to the OUT side for a moment until the valve switches. (About 1/100 second) If there is any effect on the connected equipment due to the above air flow, install a speed controller, etc. on the OUT side, and adjust to prevent this effect before use.





Model

	Applicable tubing O.D.									
Model		Metric size		Inch size						
	3.2	4	6	1/8"	5/32"	1/4"				
VR1211F	•	•	•	•	•	•				

Specifications

Proof pressure	1.5 MPa
Max. operating pressure	1.0 MPa
Min. operating pressure	0.05 MPa
Ambient temperature and operating fluid temperature	-5 to 60°C (No freezing)
Applicable tubing material (1)	Nylon, Soft nylon, Polyurethane

Note 1) Use caution about the maximum operating pressure when soft nylon and polyurethane is used. (Refer to the **Web Catalog**.)

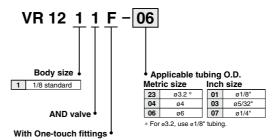
Note 2) Brass components are all electroless nickel plated as standard.

(Copper-free and fluorine-free)

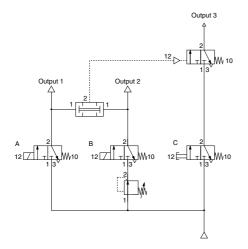
Flow rate characteristics

	VR1211F				
Applicable tubing O.D.	Metric size	ø3.2	ø4	ø6	-
	Inch size	ø1/8"	ø5/32"	-	ø1/4"
Flow rate	C[dm3/(s-bar)]	0.3	0.4	0.5	0.6
characteristics	b	0.25	0.25	0.25	0.25

How to Order

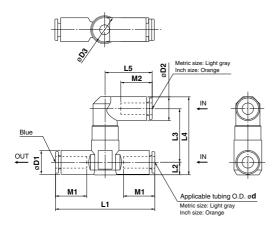


Example of Operating Circuit



- If both A and B are turned ON, which are in different pressure conditions, both output 1 and 2 will turn ON
- Only when output 1 and 2 are in the ON state, and C turns ON, will output 3 turn ON.
- If either A or B is turned OFF, output 3 will not be turned ON, even if C is turned ON.

Dimensions



Metric Size

Model	d	D1	D2	D3	L1	L2	L3	L4	L5	M1	M2	Weight (g)	Compatible holder Note)
VR1211F-23	3.2	11.4	8.4		52	6.2	25.7	36.1	17.5	12.7	12.9	26.4	TMH-06J
VR1211F-04	4	11	10.4	14.8	53	6	26.6	37.8	21.9	16.5	15.8	20.8	_
VR1211F-06	6	12.8	12.8		53.2	6.7	28.8	41.9	25.2	16.8	16.8	25.0	TMH-06

Inch Size

	Model	d	D1	D2	D3	L1	L2	L3	L4	L5	M1	M2	Weight (g)	Compatible holder Note)
	VR1211F-01	1/8"	11.4	8.4		52	6.2	25.7	36.1	17.5	12.7	12.9	26.4	TMH-06J
Ī	VR1211F-03	5/32"	11	10.4	14.8	53	6	26.6	37.8	21.9	16.5	15.8	20.8	_
	VR1211F-07	1/4"	13.2	13.2		54.4	7	28.8	42.5	25.6	16.8	16.8	27.0	TMH-07

Note) It is possible to use a TMH series holder to secure the VR12. The compatible models and holder models are shown above.

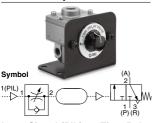


Transmitters: Time Delay Valve

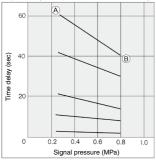
VR2110 Series



Combination of adjustable orifice and fixed flow allows transmission of a pneumatic signal after a fixed time period.

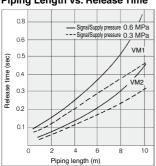


Input Signal (PIL) vs. Time Delay



Example) (a) is the point, which is set by the input signal pressure 0.25 MPa, with a delay time of 60 sec. With the same status, if the input signal pressure is increased to 0.8 MPa, the delay time varies to the (a) point (a) 40 sec).

Piping Length vs. Release Time



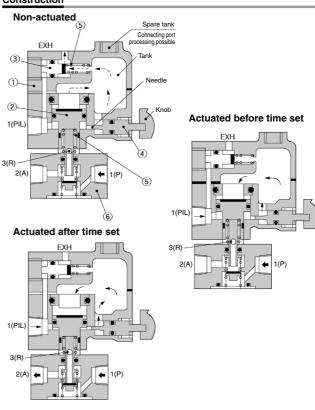
If the input signal (PIL) is turned OFF, the release time of the time delay valve changes depending upon the effective area of the valve and the length of piping. Please refer to the above graph for the standard values.

Model/Specifications

M	odel	VR2110-01		
Fluid		Air		
Supply pressure		0 to 1.0 MPa		
Signal pressure		0.25 to 0.8 MPa		
Time delay		0.5 to 60 s		
Repeatability*		±10% F.S. (Representative valve)		
Operating and fluid	l temperature	-5 to 60°C (No freezing)		
Flow rate	C[dm³/(s·bar)]	0.6 [1(P)→2(A)], 0.5 [2(A)→3(R)]		
characteristics	b	0.2 [1(P)→2(A)], 0.15 [2(A)→3(R)]		
Port size		1/8		
Weight		480 g		

- *) The dispersion is shown excluding the first actuation when actuated 4 times continuously.
- *) The accuracy may differ from the values above due to the actual conditions, such as pressure fluctuations, temperature changes, operation intervals, changes over time, etc., so be sure to check the actual machine.

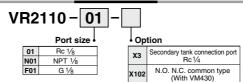
Construction



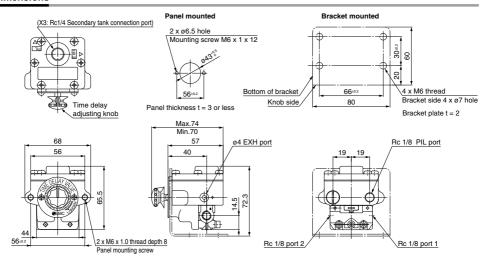
Component Parts

No.	Description	Material	Note	No.	Description	Material	Note
1	Valve body	ADC	Platinum silver	5	Return spring	Steel	
2	Differential piston	Brass, NBR			March autori		
3	Exhaust piston	Brass, NBR		6	Mechanical valve	Body: ZDC	VM130-\(\subseteq 01-00A\) (Body color: White)
4	Needle	Brass			vaive		(Dody color: Willio)

How to Order



Dimensions



⚠ Precautions

For safety instructions, be sure to read page 8 or the operation manual before using the product.

Pneumatic Pressure

⚠ Caution

Use regulated air using a regulator for input signal air.
When the input signal air fluctuates, there will be larger differences in
the delayed time, making it impossible to obtain the intended functions.
Make sure to regulate the air using a regulator to avoid any influence of
pressure fluctuation due to air consumption of other equipment.

Operation

 The time delay adjusting knob should be operated by hand only. Do not over tighten the knob.

If operating the knob with pliers or a tool or when the knob is over tightened, the needle at the adjusting part may be damaged causing an operation failure.

The knob should be operated by hand only. Do not tighten the knob further than the fully closed position of the needle (the position at which the needle stops rotating when it is tightened gently by hand).

2. Do not turn off the input signal pressure (PIL) before reaching the delay time. When the input signal pressure (PIL) is turned off before reaching the delay time, air flows out momentarily (about 1/10 seconds) to the outlet side, which may cause devices and components on the outlet side to operate unintentionally.

Operation

Caution

 Differences in the delayed time may be larger due to adhesion of the seal when the product is operated for the first time following an extended period of non-operation.

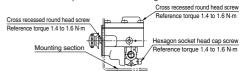
When the product is operated after an extended period of non-operation, the tolerance for the accuracy of repeatability for the time delay may be outside of the ± 10 % range. To eliminate this issue, run the time delay valve a number of cycles prior to operation.

Maintenance

⚠ Warning

- Perform inspection on a regular basis as necessary, such as at the beginning of operation, to verify that the time delay valve operates properly.
- Check whether the bolts on the mounting surface or the VR21 body are loose or damaged.

If the bolts are loose, refer to the drawing below and use a hexagon wrench or a Phillips head screwdriver to tighten them.





Transmitters: Pneumatic-electric Relay $\bigcup_{[Option]} \bigcup_{[Option]} \bigcup_{$ VR3200/3201/3202 Series

Pneumatic-electric relay converts pneumatic signal to electric relay.



Symbol



∕ Precautions

Be sure to read this before I handling the products. Refer to I page 8 for safety instructions and pages 9 to 15 for 3/4/5 port I I solenoid valve precautions.

Piping

When connecting a pipe fitting to the IN port, place the wrench over the hexagon portion of the lid.

If the wrench is placed over the microswitch body, the neck of the microswitch could break.

Operation

⚠ Caution

1. When the air is in a continually supplied state for long periods of time, the recovery time may be delayed due to the adherence of the seal.

Use caution when supplying air continually for long periods of time.

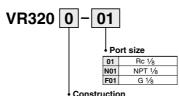
Model/Specifications

Model	VR3200-□01	VR3201-□01	VR3202-□01		
Construction	Open type	Splashproof (IP44 equivalent) Conduit: G1/2	Splashproof/Conduit with ground terminal: Pg13.5		
Weight	130 g	260 g	260 g		
Operating pressure	0.1 to 1.0 MPa				
Ambient and fluid temperature	-	5 to 60°C (No freezing	g)		
Contacts	1ab				
Port size	1/8				
Standard	-	_	EN60947-5-1: 2017 Note)		

Microswitch Rating

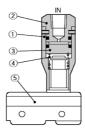
miorocitican rialing								
	Non-inductive load (A)				Inductive load (A)			
Voltage	Resista	esistance load Light load		Inductive load		Electric motor load		
	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.
125 VAC	15	15	3	1.5	15	15	5	2.5
250 VAC	15	15	2.5	1.25	15	15	3	1.5
8 VDC	15	15	3	1.5	15	15	5	2.5
14 VDC	15	15	3	1.5	10	10	5	2.5
30 VDC	6	6	3	1.5	5	5	5	2.5
125 VDC	0.5	0.5	0.5	0.5	0.05	0.05	0.05	0.05
250 VDC	0.25	0.25	0.25	0.25	0.03	0.03	0.03	0.03

How to Order



_	
0	Open type
1	Splashproof (IP44 equivalent)
2	Splashproof with ground terminal (IP44 equivalent)/CE/UKCA-compliant

Construction



Component Parts

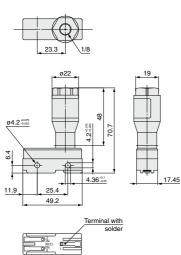
No.	Description	Material	Note	
1	Body	Brass		
2	Сар	Brass		
3	Piston	POM		Ξ

	No.	Description	Material	Note
	4	Spring	Stainless steel	
	5	Microswitch		Contacts 1 ab
_				

Transmitters: Pneumatic-electric Relay VR3200/3201/3202 Series

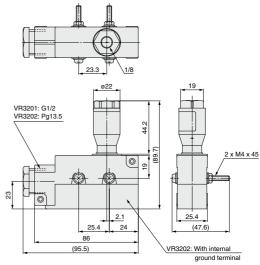
Dimensions

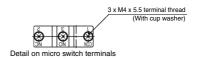
VR3200



Detail on micro switch terminals

VR3201, VR3202





Transmitters: Pneumatic Indicator VR3100 Series



Transmitters:
Miniature Pneumatic Indicator

VR3110 Series



Indicates the presence of pneumatic pressure. It is equivalent to the pilot lamp of an electrical system.





This is an ultra-compact air indicator light to monitor the presence of air pressure.

It is equivalent to the pilot lamp of an electrical system.



Model/Specifications





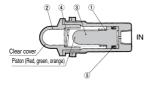
Model/Specifications

Model	VR3100-01R	VR3100-01G	VR3100-010				
Color of indicator	Red	Green	Orange				
Operating pressure	0.1 to 0.8 MPa						
Ambient and fluid temp.	-5 to 60°C (No freezing)						
Frequency	100 c.p.m. or less						
Port size	Rc1/8						
Weight	40a						

* When the air is in a continually supplied state for long periods of time, the recovery time may be delayed due to the adherence of the seal. Use caution when supplying air continually for long periods of time.

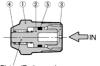
Model	VR3110-01R	VR3110-01G				
Color of indicator	Red	Green				
Operating pressure	0.15 to 1.0 MPa					
Ambient and fluid temp.	-5 to 60°C (No freezing)					
Frequency	300 c.p.m. or less					
Port size R 1/8						
Weight	6g					

Construction



No.	Description	Material	Note
1	Body	Aluminum alloy	
2	Indicator window	Acrylic	
3	Piston	POM	
4	Return spring	Stainless steel	
5	DY seal	NBR	

Construction



Piston (Red, green)

No.	Description	Material	Note
1	Body	Brass	
2	Piston A	POM	
3	Plug	PE	
4	Spring	Stainless steel	
- 5	O-rina	NBR	

Dimensions

Dimensions

