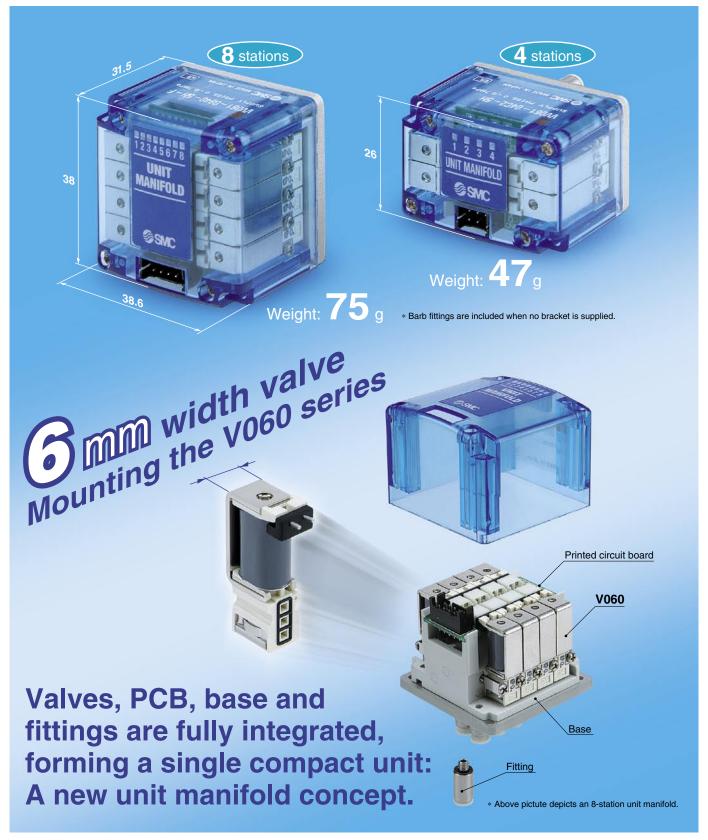
((

Unit Manifold Valve

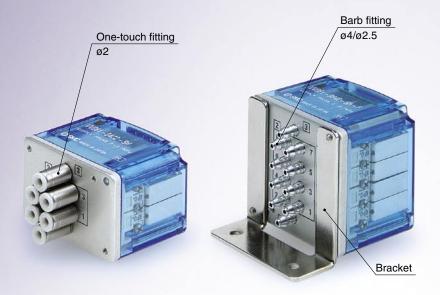
Compact Direct Operated 3 Port Solenoid Valve





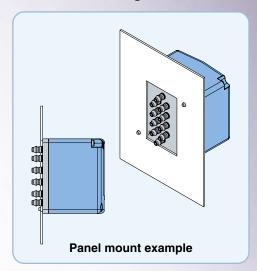
Unit Manifold

Able to select one-touch fitting or barb fitting

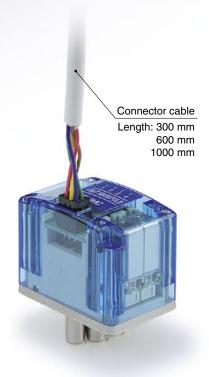


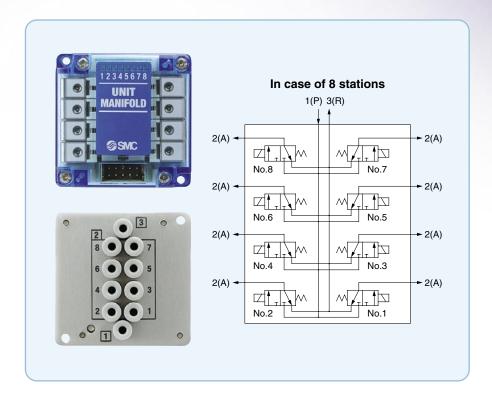
Mounting

- Bracket mounting
- Panel mounting



Lead wire length



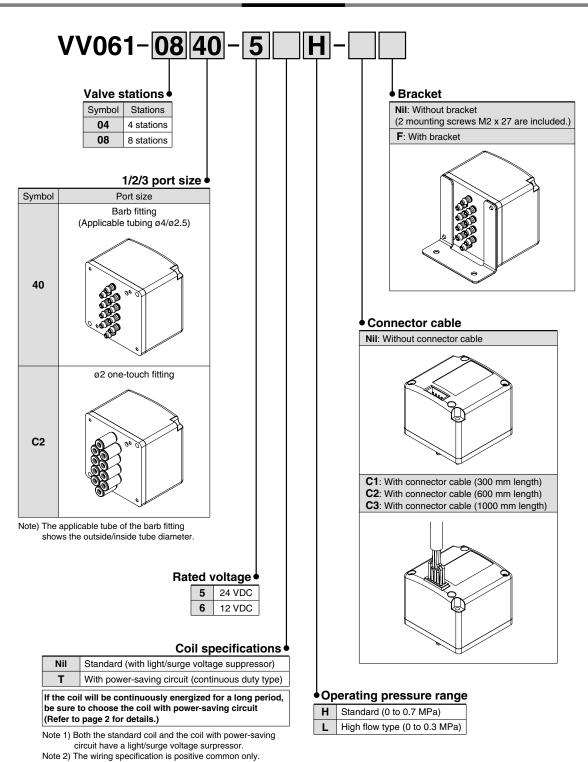


RoHS compliant reducing environmental impact

Unit Manifold Valve Compact Direct Operated 3 Port Solenoid Valve

Series VV061 (E

How to Order

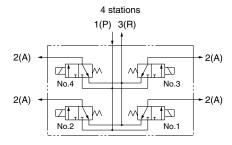


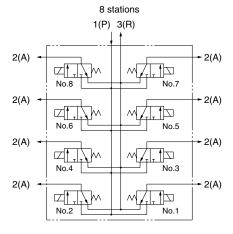
Series VV061





Symbol





Unit Manifold Specifications

Fluid		Air			
Operating pressure	Standard	0 to	0.7		
range (MPa)	High flow type	0 to 0.3			
,, ,,,		1(P) port	3(R) port		
Vacuum specification (MPa)	Standard	-100 kPa to 0.6	-100 kPa to 0		
(2)	High flow type	-100 kPa to 0.2	-100 kPa to 0		
Ambient and fluid temp	Ambient and fluid temperature (°C)		-10 to 50 (No freezing)		
Response speed (ms) Note 1)		10 ms or less			
Max. operating frequen	cy (Hz)	20			
Lubrication		Not required			
Mounting orientation		Unrestricted			
Impact/Vibration resistance (m/s²) Note 2)		150/30			
Enclosure		Dustproof			

Note 1) Based on dynamic performance test, JIS B8374-1981(standard type: Coil temperature 20°C, at rated voltage).

Note 2) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction

and at the right angles to the main valve and armature in both energized and de-

energized states every once for each condition (value in both initial state).

Vibration resistance: No malfunction occurred in one sweep test between 45 and 2000 Hz. Test was performed to axis and right angle directions of the main valve and armature when pilot signal is ON and OFF (Value in the initial state).

The impact/vibration resistance is 50/10 [m/s²] for a manifold with a power-saving circuit.

Solenoid Specifications

Coil rated voltage		12, 24 VDC		
Allowable		24 VDC	12 VDC	
voltage	Standard	-7% to +10%	-4% to +10%	
fluctuation Note)	Power-saving type	-5% to +10%	-6% to +10%	
Power consumption (W)		Standard: 0.55		
		With power-saving circuit (continuous duty type): 0.23		
Surge voltage suppressor		Diode		
Indicator light		LED		

Note) The voltage fluctuation should be within the above range in order to prevent voltage drops caused by the internal circuit.

Flow Characteristics

Tuno	Effective area (mm²)		
Туре	1(P)→2(A)	2(A)→3(R)	
Standard	0.07	0.11	
High flow type	0.16	0.21	

Weight

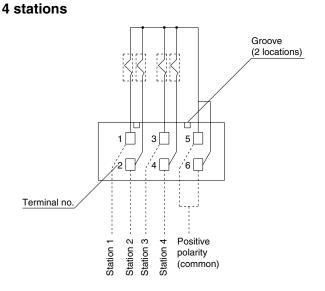
Stations	Port size	Weight (g) Note)
4	Barb fitting	47 (56)
stations	ø2 one-touch fitting	53 (62)
8	Barb fitting	75 (85)
stations	ø2 one-touch fitting	84 (94)

Note) (): values with bracket

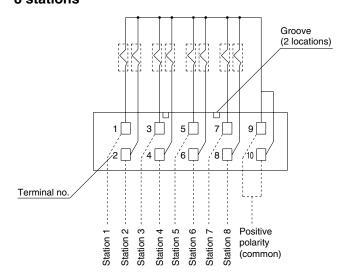


Unit Manifold Internal Wiring

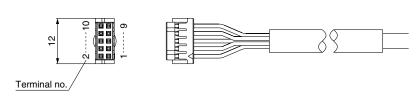
.



8 stations



Connector Cable Specifications



Connector Cable Colour List for Each Terminal No.

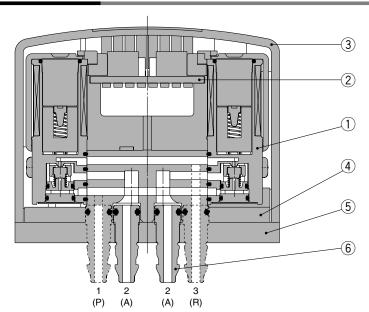
4 stations

Terminal no.	Lead wire colour	
1	Brown	
2	Red	
3	Orange	
4	Yellow	
5	Green	
6	Blue	

8 stations

Terminal no.	Lead wire colour
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Purple
8	Gray
9	White
10	Black

Construction



Component Parts

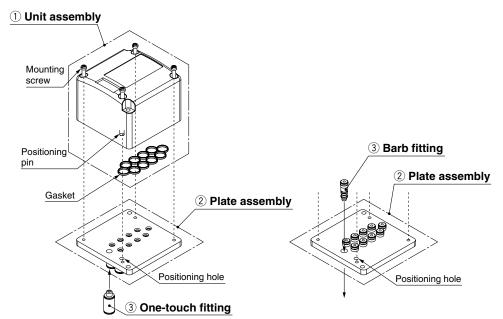
No.	Description	Material	Note	
1	Solenoid valve	_	Unit assembly	
2	PCB assembly	_	4 mounting screws M2 x 27 L are included.	
3	Cover	Resin		
4	Base	Resin		
5	Plate	Aluminum	Plate assembly	
6	Barb fitting	Aluminum	Flate assembly	

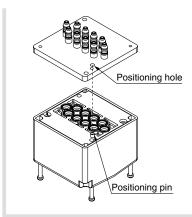
Note) This internal construction is different from the actual product. $\label{eq:construction}$



Series VV061

Replacement Parts





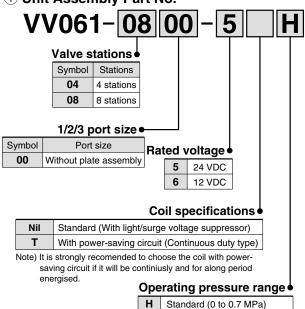
How to Mount Unit Assembly

Fit the positioning pin of the unit with the positioning hole of the plate, and assemble them.

⚠ Caution

Tightening torque: 0.12 N⋅m





⁴ mounting screws (M2 x 27 L) and one gasket are included by default.

② Plate Assembly Part No.

Stations Fitting	Barb fitting	One-touch fitting
4 stations	PV060-10-8A	PV060-10-10A
8 stations	PV060-10-7A	PV060-10-9A
Note	Barb fitting is included.	One-touch fitting is mounted on the plate.

High flow type (0 to 0.3 MPa)

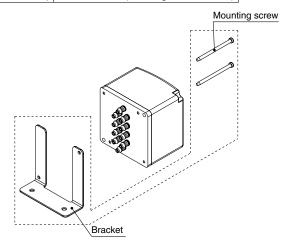
③ Fitting Part No. If only the fitting is needed, order with one of the part numbers below.

Description	Barb fitting	One-touch fitting
Part no.	PV060-73-1A	KJS02-M3

Note) The minimum ordering quantity is 10 pcs.

4 Bracket Assembly Part No.

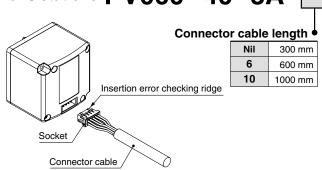
Description	Part no.
Bracket (for 4 stations)	PV060-80-2A (Mounting screw included)
Bracket (for 8 stations)	PV060-80-1A (Mounting screw included)



(5) Connector Cable Part No.

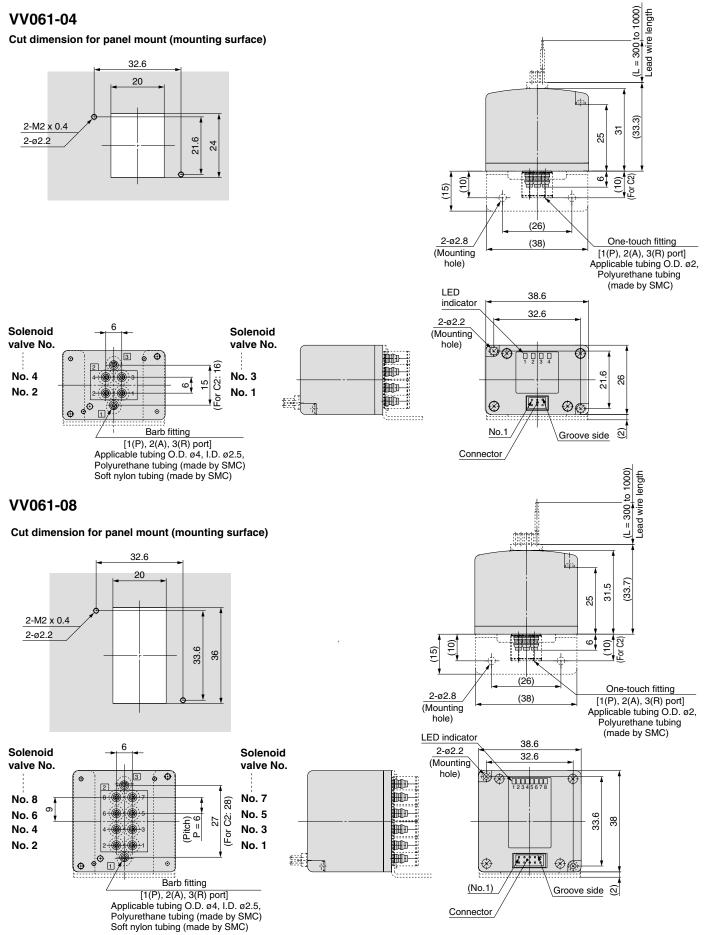
For 4 stations **PV060-40-4A-**

For 8 stations PV060-40-3A-





Dimensions





Series VV061 Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by labels of "Caution", "Warning" or "Danger". Comply with ISO 4414 Note 1), JIS B 8370 Note 2) and other safety standards in order to ensure safety.

■ Explanation of the Labels

Label	Explanation of the label
⚠ Danger	In extreme conditions, there is a possible result of serious injury or loss of life.
	Operator error could result in serious injury or loss of life.
⚠ Caution	Operator error could result in injury Note 3) or equipment damage. Note 4)

- Note 1) ISO 4414: Pneumatic fluid power. General rules relating to systems.
- Note 2) JIS B 8370: General Rules for Pneumatic Equipment.
- Note 3) Injury indicates light wounds, burns and electrical shocks that do not require hospitalization or hospital visits for long-term medical treatment.
- Note 4) Equipment damage refers to extensive damage to the equipment and surrounding devices.

■ Selection/Handling/Applications

1. The compatibility of the pneumatic equipment is responsibility of the person who designs the pneumatic system or decides its specifications.

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or post analysis and/or tests to meet the specific requirements. The expected performance and safety assurance are responsibility of the person who has determined the compatibility of the system. This person should continuously review the suitability of all items specified, referring to the latest catalogue information with a view to giving due consideration to any possibility of equipment failure when configuring a system.

2. Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if handled incorrectly. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators. (Understanding JIS B 8370 General Rules for Pneumatic Equipment, and other safety rules are included.)

- 3. Do not service machinery/equipment or attempt to remove components until safety is confirmed.
 - 1. Inspection and maintenance of machinery/equipment should only be performed once measures to prevent falling or runaway of the driven objects have been confirmed.
 - 2. When equipment is removed, confirm that safety process as mentioned above. Turn off the supply pressure for this equipment and exhaust all residual compressed air in the system, and release all the energy (liquid pressure, spring, condenser, gravity).
 - 3. Before machinery/equipment is restarted, take measures to prevent quick extension of a cylinder piston rod, etc.
- 4. If the equipment will be used in the following conditions or environment, please contact SMC first and be sure to take all necessary safety precautions.
 - 1. Conditions and environments beyond the given specifications, or if product is used outdoors.
 - 2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, clutch and brake circuits in press applications, or safety equipment.
 - 3. An application which has the possibility of having negative effects on people, property, requiring special safety analysis.
 - 4. If the products are used in an interlock circuit, prepare a double interlock style circuit with a mechanical protection function for the prevention of a breakdown. And, examine the devices periodically if they function normally or not.

■ Exemption from Liability

- 1. SMC, its officers and employees shall be exempted from liability for any loss or damage arising out of earthquakes or fire, action by a third person, accidents, customer error with or without intention, product misuse, and any other damages caused by abnormal operating conditions.
- 2. SMC, its officers and employees shall be exempted from liability for any direct or indirect loss or damage, including consequential loss or damage, loss of profits, or loss of chance, claims, demands, proceedings, costs, expenses, awards, judgments and any other liability whatsoever including legal costs and expenses, which may be suffered or incurred, whether in tort (including negligence), contract, breach of statutory duty, equity or otherwise.
- 3. SMC is exempted from liability for any damages caused by operations not contained in the catalogues and/or instruction manuals, and operations outside of the specification range.
- 4. SMC is exempted from liability for any loss or damage whatsoever caused by malfunctions of its products when combined with other devices or software.





Series VV061 Specific Product Precautions 1

Be sure to read this before handling.

For Safety Instructions, refer to the back of page 1 and for 3/4/5 Port Solenoid Valves and Common Precautions, refer to "Precautions for Handling Pneumatic Devices" (M-03-E3A).

Selection

⚠ Warning

1. Extended period being continuosly energised

- If a valve will be continuously energised for an extended period of time, the temperature of the valve will increase due to the heat generated by the coil. This will likely adversely affect the performance of the solenoid valve and any nearby peripheral equipment. Therefore, when it is continuously energised or the energised period per day is longer than the de-energised period, use the valves with power-saving circuit.
- For applications such as mounting a valve on a control panel, make sure the heat radiation fits within the operating temperature range.

How to Use Plug in Connector

1. Attaching and detaching connectors

1) To attach a connector

Insert the connector cable to the end of the socket with the insertion error checking ridge facing upward.

Then pull the connector cable and check that it does not come out.

2) To detach a connector

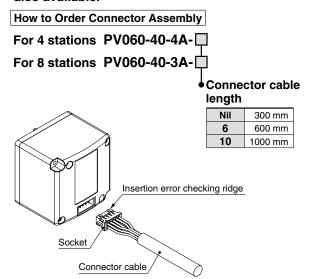
Remove the socket from the unit manifold by gripping the socket of the connector cable.

If excessive force is applied to the connector cable, the connector may come off (do not apply a force of 20 N or more to the lead wire).

Connector Cable Length

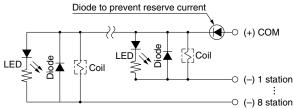
⚠ Caution

1. Standard length is 300 mm, but more lengths are also available.



Surge Voltage Suppressor

⚠ Caution

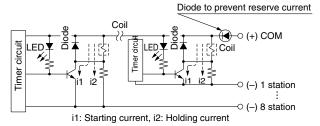


- Since 12 voltage specification does not have diodes for pola rity protection, be careful not to confuse with polarity.
- Please use caution regarding the allowable voltage fluctuation because there is about a 1 volt drop for a valve with polarity protection. (For details, refer to the solenoid specifications for the individual valve.)

■ With power-saving circuit

Power consumption is decreased to approx. 1/2 by reducing the wattage required to hold the valve in an energized state. (Effective energizing time is over 62 ms.)

Electric circuit (with power-saving circuit) single solenoid



Remarks:

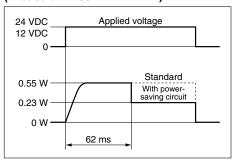
- 1) Impact and vibration should not be more than 50/10 [m/s²].
- 2) Voltage fluctuation for 24 VDC should be within the range of -5% to +10% of the rated voltage, and for 12 VDC should be within the range of -6% to +10% of the rated voltage.

Working Principle

⚠ Caution

1. With the above circuit, the current consumption when holding is reduced to save energy. Please refer to the electric wave data below.

Electric wave form of power-saving type (In case of VV061-□□□□-□T)



- Please be careful not to reverse the polarity, since the diode to prevent the reversed current is not provided for the 12 VDC specification.
- Please be careful regarding the allowable voltage fluctuation because there is about a 0.5 volt drop due to the transistor.





Series VV061 Specific Product Precautions 2

Be sure to read this before handling.

For Safety Instructions, refer to the back of page 1 and for 3/4/5 Port Solenoid Valves and Common Precautions, refer to "Precautions for Handling Pneumatic Devices" (M-03-E3A).

Mounting

⚠ Caution

1. Tightening the threaded portion of an M3 fitting

For KJS02-M3 (one-touch fitting), tighten it with a suitable tool by approx. 1/6 rotation after screwing it by hand. Screwing the fitting too far will cause air leakage due to thread breakage and/or gasket deformation. Screwing the fitting not far enough will also cause air leakage.

One-touch Fittings Precautions

∧ Caution

Tubing insertion / removal from one-touch fittings Attaching of tubing

- (1) Cut the tubing perpendicularly, being careful not to damage the outside surface. Use an SMC tubing cutter "TK-1", "TK-2" or "TK-3". (do not cut the tube with pliers, nippers, scissors, etc). If cutting is done wit tools other than tube cutters, the tube could be cut diagonally or become flattened, etc., making impossible a secure installation, and causing problems such as the tube pulling out after installation or existence of air leakage. Also allow some extra length in the tube.
- (2) Slowly push the tube into the one-touch fitting until it stops.
- (3) Pull the tubing back gently to make sure it has a positive seal. A faulty installation may cause air leakage or tube release.

2) Removing of tubing

- Push flange evenly and push the release bushing sufficiently.
- (2) Pull out the tube while keeping the release button depressed. If the release bushing is not held down sufficiently, the tube cannot be withdrawn.
- (3) To reuse the tubing, remove the previously lodged portion of the tube. If the lodged portion is left on without being removed, it may result in air leakage and difficulty in tube removal.

Other Tubing Brands

⚠ Caution

 When using other than SMC brand tubing, confirm that the following specifications are satisfied with respect to the outside diameter tolerance of the tubing.

1) Soft nylon tubing within ±0.1 mm 2) Polyurethane tubing within +0.15 mm, within -0.2 mm.

Do not use tubing which does not meet these outside diameter tolerances. It may not be possible to connect them, or they may cause other trouble, such as air leakage or the tubing pulling out after connection.







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