Discontinue

CKD

SM-P00037-A

INSTRUCTION MANUAL

PILOT TYPE 3,5 PORTS ELECTRIC-MAGNETIC VALVE

MN3GD/E1-SERIES
MN3GD/E2-SERIES
MN4GD/E1-SERIES
MN4GD/E2-SERIES

● **Block manifold type**

- Please read this instruction manual carefully before using this product, especially the section describing safety.
- Retain this instruction manual with the product for further consultation whenever necessary.

2ND EDITION

CKD Corporation

Safety precautions

When designing and manufacturing a device using CKD products, the manufacturer is obligated to manufacture a safe product by confirming safety of the system comprising the following items:

- Device mechanism
- Pneumatic or water control circuit
- Electric control that controls the above

It is important to select, use, handle, and maintain the product appropriately to ensure that the CKD product is used safely.
Observe warnings and precautions to ensure device safety.
Check that device safety is ensured, and manufacture a safe device.

⚠ WARNING

1. This product is designed and manufactured as a general industrial machine part. It must be handled by someone having sufficient knowledge and experience.

2. Use this product within its specifications.

This product cannot be used beyond its specifications. Additionally, the product must not be modified or machined.
This product is intended for use in general industrial devices and parts. Use beyond such conditions is not considered. Consult with CKD for details when using the product beyond the unique specification range, outdoors, or in the following conditions or environments. In any case, measures for safety shall be provided when the vavle malfunctions.

① Use for special applications requiring safety including nuclear energy, railroad, aviation, ship, vehicle, medical equipment, equipment or applications coming into contact with beverage or food, amusement equipment, emergency shutoff circuits, press machine, brake circuits, or for safeguard.
② Use for applications where life or assets could be adversely affected, and special safety measures are required.

3. Observe corporate standards and regulations, etc., related to the safety of device design and control, etc.

SO4414, JIS B 8370 (pneumatic system rules)
JFPS2008 (principles for pneumatic cylinder selection and use)
Including High Pressure Gas Maintenance Law, Occupational Safety and Sanitation Laws, other safety rules, standards and regulations, etc.

4. Do not handle, pipe, or remove devices before confirming safety.

① Inspect and service the machine and devices after confirming safety of the entire system related to this product.
② Note that there may be hot or charged sections even after operation is stopped.
③ When inspecting or servicing the device, turn off the energy source (air supply or water supply), and turn off power to the facility. Release any compressed air from the system, and pay enough attention to possible water leakage and leakage of electricity.
④ When starting or restarting a machine or device that incorporates pneumatic components, make sure that system safety, such as pop-out prevention measures, is secured.

[SM-P00037-A]

5. Observe warnings and cautions on the pages below to prevent accidents.

■The safety cautions are ranked as "DANGER", "WARNING" and "CAUTION" in this section.

DANGER :When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries, or when there is a high degree of emergency to a warning.

WARNING :When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries.

CAUTION :When a dangerous situation may occur if handling is mistaken leading to minor injuries or physical damage.

Note that some items described as "CAUTION" may lead to serious results depending on the situation. In any case, important information that must be observed is explained.

Precautions with regard to guarantee

- **Guarantee period**

The guarantee period of our product shall be one (1) year after it is delivered to the place specified by the customer.

- **Guarantee coverage**

If any failure for which CKD CORPORATION is recognized to be responsible occurs within the above warranty period, a substitute or necessary replacement parts shall be provided free of charge, or the product shall be repaired free of charge at the plant of CKD CORPORATION.

However, the guarantee excludes following cases:

① Defects resulting from operation under conditions beyond those stated in the catalogue or specifications.
② Failure resulting from malfunction of the equipment and/or machine manufactured by other companies.
③ Failure resulting from wrong use of the product.
④ Failure resulting from modification or repairing that CKD CORPORATION is not involved in.
⑤ Failure resulting from causes that could not be foreseen by the technology available at the time of delivery.
⑥ Failure resulting from disaster that CKD is not responsible of.

Guarantee stated here covers only the delivered products. Any other damage resulting from failure of the delivered products is not covered by this guarantee.

- **Confirmation of product compatibility**

Our customer shall be responsible of confirming compatibility of our product used in our customer's system, machinery or device.

UNPACKING (Chapter 3.)

⚠ CAUTION : Bags containing solenoid valves should be opened only when you are ready to connect the valves to the pipes immediately afterward.

・If bags are opened before the valves are ready to be connected to the pipes, the entry of foreign matter from the piping ports could cause the solenoid valves to fail or malfunction.

INSTALLATION (Chapter 4.)

⚠ CAUTION : If you have to use the product under conditions that are different from the specified conditions or if you intend to use the product for a special application, be sure to consult us about the product specifications before using the product.

INSTALLATION ENVIRONMENT (Section 4.1.)

⚠ CAUTION :

a) In a dusty environment, foreign matter may enter even through the exhaust port.

- The movement of the solenoid valve causes a respiratory action at the exhaust port, which may cause inhalation of foreign matter around the exhaust port. This potential situation would be worse if the exhaust port is facing upward. Attach a silencer to the exhaust port or have the exhaust port face downward.

b) Do not keep water or coolant dripping to the solenoid valve system constantly.

- In case that the solenoid valve system is used under the conditions with constant water splash, protect it by a cover or install it inside a enclosure.
- If the cylinder rod is splashed with cutting oil, the oil may penetrate through the cylinder into the secondary side piping of the solenoid valve. This must be prevented to avoid malfunctions. Consult us for preventive measures.

c) The coils will produce heat.

- Particularly if the solenoid valve system is installed in a control board or if the solenoid coils need to be energized for a long time, consider providing sufficient ventilation to release the heat. The coils can get very hot.

d) Do not use the solenoid valve system in an atmosphere that includes a corrosive gas such as the sulfur dioxide gas or solvent vapors.

e) Vibrations and shocks
Do not subject the solenoid valve system to vibrations 50m/s^2 or stronger or shocks 300m/s^2 or stronger.

f) Do not use the normal type solenoid valves for an application that requires conformity with explosion-proof specifications. Choose explosion-proof solenoid valves instead.

INSTALLATION (Section 4.2.)

⚠ WARNING : When installing a solenoid valve unit, never attempt to hold it in position by means of the pipes connected to it.

・Fix the solenoid valve by applying the mounting screws and/or mounting plate to the solenoid valve.

⚠ CAUTION : When mounting this product on the DIN rail, check the strength

・If the strength is insufficient, mount the manifold base directly.

PIPING (Section 4.3.)

⚠ CAUTION :

a) Observe the recommended tightening torque when connecting pipes.
- Observing the recommended tightening torque prevents air leakage and damage to the screw threads. To prevent damage to the screw threads, first use your hand to lightly tighten the screw and then use a tool to tighten the screw to the recommended torque.

b) Make sure that the pipes will not be disconnected at the joints by mechanical movements, vibrations or tension.
- If the exhaust piping of the pneumatic circuit is disconnected, the actuator speed control is disabled.
- If the above happens to a chuck holding mechanism, the chuck will open. The inadvertent opening of the chuck may cause a serious accident.

c) When supplying the compressed air for the first time after completing the piping, be sure to check every joint in the piping for air leakage.

d) When supplying the compressed air for the first time after completing the piping, increase the air pressure gradually but never introduce a highly-pressurized air suddenly.
- A sudden introduction of a highly-pressurized air may disconnect pipes at joints and/or cause the tubes to jump around, any of which may cause an injury.

e) Do not decrease the inside diameter of the piping from any of the solenoid valve exhaust ports to a diameter less than the exhaust pipe connecting port size.
- Normal operation of the actuator depends on the smoothness of the exhaust flow. With a manifold system, a restriction to the exhaust flow may prevent normal operation of other solenoid valves.

f) Removal of foreign matter
- Rust and other foreign matter in the pneumatic circuit may cause a malfunction or leakage from the valve seat. Insert a filter (maximum allowable particle size 5μm or less) immediately upstream of the solenoid valve.

g) Air supply

Do not restrict the flow of air through the air supply piping. With a manifold system with multiple stations, a drop in the air supply pressure may cause trouble through a delay in the operation timing.

WIRING (Section 4.4.)

⚠ WARNING :

When carrying out electrical connections, please perform disassembling and assembling work after reading the Instruction Manual carefully and with full understanding of its contents.
- Your understanding of the structure of solenoid valve and its operation principle is required in order to secure the safety.

⚠ CAUTION :

Before supplying the power, check the power supply voltage and the current type (AC or DC).

MANUAL OPERATION (Section 5.2.)

⚠ WARNING :

a) After using the manual override, be sure to reset the manual override to the original (OFF) position before resuming the operation of the device.
b) Before using the manual override, make sure that nobody is present near the cylinder to be activated.
c) After an operation, be sure to release the lock to turn the manual override OFF.
The lock is released (the manual override turned OFF) if the manual override protection cover is closed.

AIR QUALITY (Section 5.3.)

⚠ WARNING :

a) Do not supply anything other than compressed air.
b) Supply clean compressed air without any mixture of corrosive gas.

⚠ CAUTION :

a) Compressed air usually contains a large amount of drain, oxidized oil, tar, foreign matter, and rust from the piping. Filter out those elements in the supplied air because they may cause a malfunction and decrease service life. In addition, clean the exhaust before it is released to the air to minimize pollution.
b) Once you have lubricated a pre-lubricated valve, the valve is no longer capable of running without being lubricated from the outside. Do not leave the valve without lubrication. Keep it lubricated.
c) Do not use spindle oil or machine oil. They induce expansion of the rubber parts, which will cause malfunction.

ELECTRIC CIRCUIT (Section 5.4.)

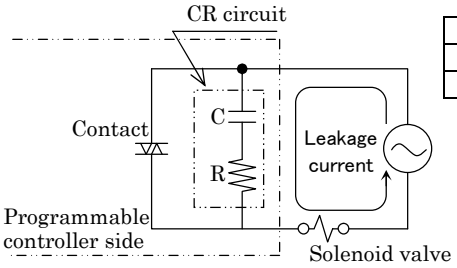
⚠ CAUTION :

a) Check for the presence of any current leak from the external control device because it may cause malfunction.

- When a programmable controller or a similar control device is used, a current leak may prevent the normal returning of the valve when the solenoid is de-energized.

b) Restriction on current leak

- When controlling solenoid valves using a programmable controller or a similar control device, make sure that the current leak in the programmable controller output is equal to or less than the level shown in the table below. A current leak larger than the allowable level may cause malfunction.



AC100V	2.0 mA or less
DC12V	1.5 mA or less
DC24V	1.8 mA or less

PERIODIC INSPECTION (Section 6.1.)

⚠ WARNING : Before providing maintenance service, cut the power and the supply of compressed air and confirm the residual pressure is released.

・The above is required to ensure safety.

⚠ CAUTION : Regularly perform the daily and periodic inspections to correctly maintain product performance.

・If the product is not correctly maintained, product performance may deteriorate dramatically, resulting in a shorter service life, fractures of components, and malfunctions.

DISASSEMBLY AND ASSEMBLY (Section 6.2.)

⚠ WARNING : Before increase or decrease block of manifold, cut the power and the supply of compressed air.

⚠ WARNING : Please avoid disassembling and reassembling the solenoid valve, otherwise the sealing and drip proof performance may deform.

・Disassembled and Reassembled product by the customer will not be guaranteed.

ADDITIONAL INSTALLATION OF A VALVE UNIT TO A REDUCED WIRING TYPE MANIFOLD (Section 6.3.)

⚠ WARNING : When disassembling or assembling the manifold, perform it after reading the Instruction Manual carefully and with full understanding of its contents.

- You are required to understand the structure of solenoid valve and its operation principle to secure the safety.
- A level of 2nd Class or more of Pneumatics Technology Certification is required.

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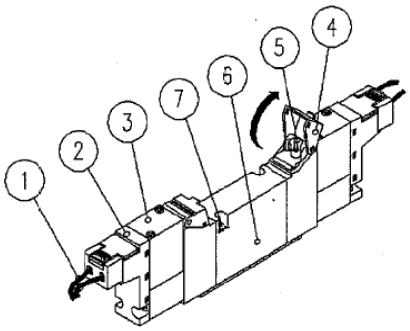
MN4GD/E1 , MN4GD/E2

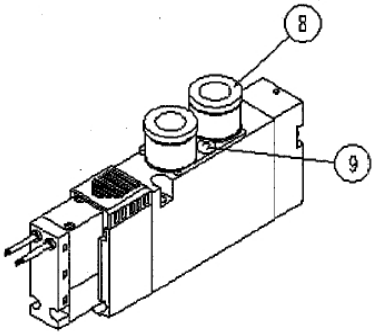
Pneumatic 3,5-port solenoid valve

Instruction Manual No. SM-P00037-A

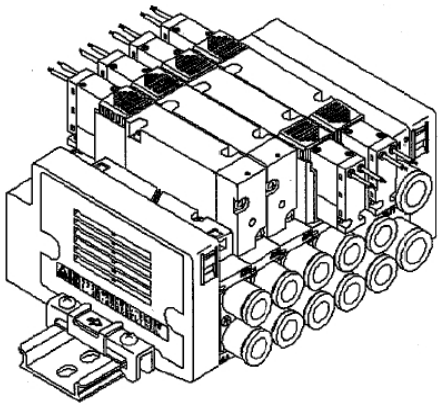
1. PRODUCT



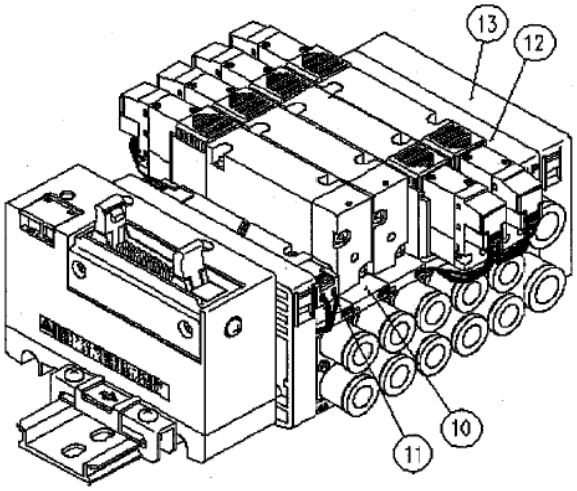
base porting type



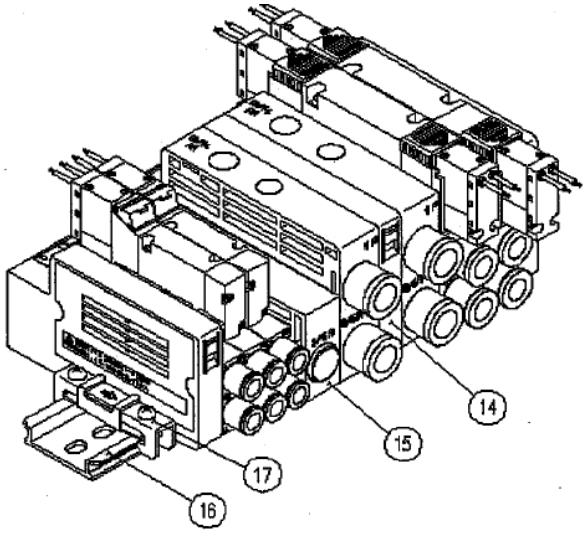
body porting type



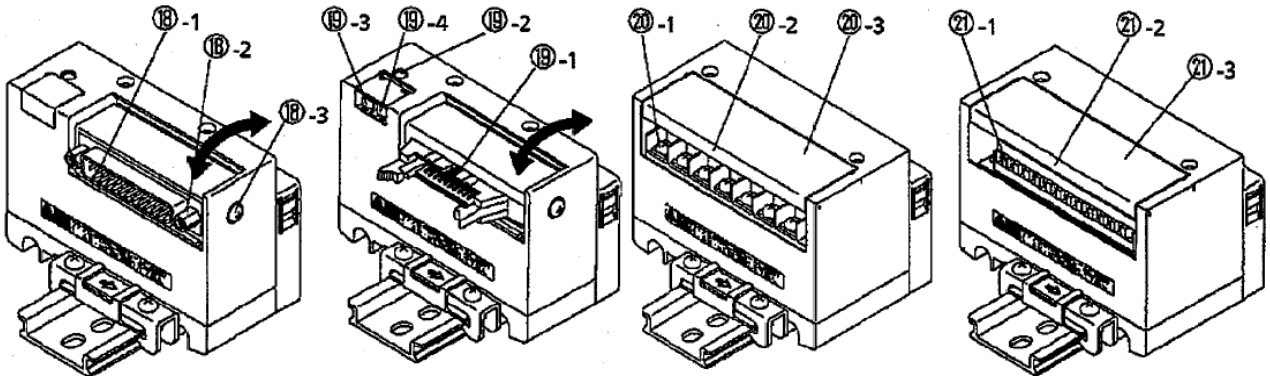
Individual wiring type manifold



Individual wiring type manifold



Mix - manifold



18.D-sub connector(T30) 19.Flat cable type(T50) 21.Common terminal stand block(T11)
20.Common terminal stand block(T10) Push-in fitting type
M3 thread type

1) Solenoid valve individual

No.	Parts name	Explanation
1	Lead wire	No specification about the polarities.
2	Electric component cover	The green power indicator light on the top surface is lit when the power is surplied to the coil. (With E-type and A-type connectors only.)
3	Coil assembly	It varies depending on electric wire connection type and voltage.
4	Manual override protection cover	The protection cover prevents accidental operation of the manual ovveride. The user must open the cover before operating the manual override.
5	Manual override	Allows a non-lock type operation (push and release) as well as a lock type (push and lock) operation.
6	Individual valve	
7	Mounting screw	Two screws are provided for each individual valve so as to fix the individual valves to various bases.
8	Joint	A replaceable cartridge type one-touch joint
9	Mounting screw	Secures cartridge type joints or the like.

2) Piping block

No.	Parts name	Explanation
10	Valve block with solenoid valve	A block of assembled solenoid valve unit and valve block(split resin base).
11	Valve block with masking plate	Removed when an additional valve unit is installed.
12	Air supply or exhaust block	A block with a supply and an exhaust port.
13	End block	It has a function of common supply/exhaust flow plugging and a built-in muffler (option).
14	Partition block	Shuts off the supply and exhaust as required, and is used for different pressure circuits or the like.
15	Mix block	Allowed to stand in cases where 4G1 and 4G2 models are mounted on the manifold together.
16	DIN rail	Mounting rail
17	End retainer	Secures a solenoid valve manifold on the DIN rail.

3)Wiring block

No.	Parts name	Explanation
18	D sub-connector type(T30)	
18-1	D-sub 25-pin connector	Combines the manifold valve control terminals.
18-2	Connector lock screw	Locks the mating connector (M2.6).
18-3	Lock screw	Loosened to allow changing the direction for leading out the connected cable; tightened to lock the direction.
19	Flat cable type(T50)	
19-1	20-pin connector	Combines the manifold valve control terminals.
19-2	Power indicator light	Lit when the power is supplied with right polarities.
19-3	Power terminal block	Used when an external power supply is required
19-4	Power polarity marking	
20	Common terminal stand Specifications for M3 thread(T10)	
20-1	Common terminal stand (14 poles)	A common stand for the control terminals of the manifold solenoid valve.
20-2	Cover.	Keep closed while is used to prevent an electric shock.
20-3	Indicates the layout of the terminal stand.	Terminal stand layout drawing Indicates the layout of the terminal stand. Paper can be removed for use as a TAG for taking notes.
21	Terminal stand with 24 poles	Minus-head push fastening
21-1	Common terminal stand (24 poles)	A common stand for the control terminals of the manifold solenoid valve.
21-2	Cover	Keep closed while in use to prevent an electric shock.
21-3	Indicates the layout of the terminal stand.	Indicates the layout of the terminal stand. Paper can be removed for use as a TAG for taking notes.

2. PORT INDICATION AND SI UNIT SYSTEM

2.1 Port Indication

Each piping port is marked with ISO and JIS conformable piping port indication codes.

Application	ISO	JIS
Supply port	1	P
Output port	4	A
Output port	2	B
Exhaust port	5	R1
Exhaust port	3	R2

- Installing position of the solenoid valve is free. The position of the 4(A) and 5(R1) ports for 4G series are in reverse with 2(B) and 3(R2) ports respectively, compared with the 4K series. To avoid malfunction, please confirm the port symbol before piping.

2.2 Conversion between SI unit and Conventional Units

In this manual, values are expressed using the International System of Units (SI).
Use the table below to convert them into values expressed in conventional units.

Table of conversion between SI units and conventional units
(The values printed in Bolds fonts are values given in the International System of Units (SI)):

Example (converting a pressure value):
1kgf/cm² → **0.980665Mpa** **1MPa** → 1.01972×10kgf/cm²

- Force

N	dyn	kgf
1	1×10^{5}	1.01972×10^{-1}
1×10^{-5}	1	1.01972×10^{-6}
9.80665	9.80665×10^{5}	1

- Stress

Pa or N/m²	MPa or N/mm²	kgf/mm²	kgf/cm²
1	1×10^{-6}	1.01972×10^{-7}	1.01972×10^{-5}
1×10^{6}	1	1.01972×10^{-1}	1.01972×10
9.80665×10^{6}	9.80665	1	1×10^{2}
9.80665×10^{4}	9.80665×10^{-2}	1×10^{-2}	1

∗: 1Pa=1N/m², 1MPa=1N/mm²

- Pressure

Pa	kPa	MPa	bar	kgf/cm²	atm	mmH2O	MmHg or Torr
1	1×10^{-3}	1×10^{-6}	1×10^{-5}	1.01972×10^{-5}	9.86923×10^{-6}	1.01972×10^{-1}	7.50062×10^{-3}
1×10^{3}	1	1×10^{-3}	1×10^{-2}	1.01972×10^{-2}	9.86923×10^{-3}	1.01972×10^{2}	7.50062
1×10^{6}	1×10^{3}	1	1×10	1.01972×10	9.86923	1.01972×10^{5}	7.50062×10^{3}
1×10^{5}	1×10^{2}	1×10^{-1}	1	1.01972	9.86923×10^{-1}	1.01972×10^{4}	7.50062×10^{2}
9.80665×10^{4}	9.80665×10	9.80665×10^{-2}	9.80665×10^{-1}	1	9.67841×10^{-1}	1×10^{4}	7.35559×10^{2}
1.01325×10^{5}	1.01325×10^{2}	1.01325×10^{-1}	1.01325	1.01323	1	1.03323×10^{4}	7.60000×10^{2}
9.80665	9.80665×10^{-3}	9.80665×10^{-6}	9.80665×10^{-5}	1×10^{-4}	9.67841×10^{-5}	1	7.35559×10^{-2}
1.33322×10^{2}	1.33322×10^{-1}	1.33322×10^{-4}	1.33322×10^{-3}	1.35951×10^{-3}	1.31579×10^{-3}	1.35951×10	1

∗1Pa=1N/m²

3. UNPACKING

> ⚠ CAUTION : Bags containing solenoid valves should be opened only when you are ready to connect the valves to the pipes immediately afterward.
> - If bags are opened before the valves are ready to be connected to the pipes, the entry of foreign matter from the piping ports could cause the solenoid valves to fail or malfunction.

a) Check the model number imprinted on the product to make sure that the product you received is exactly the product you ordered.
b) Check the exterior of the product for any damage.
c) Before using the product, read the supplied documentation.

4. INSTALLATION

⚠ CAUTION :	If you have to use the product under conditions that are different from the specified conditions or if you intend to use the product for a special application, be sure to consult us about the product specifications before using the product.

4.1 Installation environment

⚠ CAUTION :

a) In a dusty environment, foreign matter may enter even through the exhaust port.
- The movement of the solenoid valve causes a respiratory action at the exhaust port, which may cause inhalation of foreign matter around the exhaust port. This potential situation would be worse if the exhaust port is facing upward. Attach a silencer to the exhaust port or have the exhaust port face downward.

b) Do not keep water or coolant dripping to the solenoid valve system constantly.
- In case that the solenoid valve system is used under the conditions with constant water splash, protect it by a cover or install it inside a enclosure.
- If the cylinder rod is splashed with cutting oil, the oil may penetrate through the cylinder into the secondary side piping of the solenoid valve. This must be prevented to avoid malfunctions. Consult us for preventive measures.

c) The coils will produce heat.
- Particularly if the solenoid valve system is installed in a control board or if the solenoid coils need to be energized for a long time, consider providing sufficient ventilation to release the heat. The coils can get very hot.

d) Do not use the solenoid valve system in an atmosphere that includes a corrosive gas such as the sulfur dioxide gas or solvent vapors.

e) Vibrations and shocks
Do not subject the solenoid valve system to vibrations 50m/s^2 or stronger or shocks 300m/s^2 or stronger.

f) Do not use the normal type solenoid valves for an application that requires conformity with explosion-proof specifications. Choose explosion-proof solenoid valves instead.

4.2 Installation

⚠ WARNING :	When installing a solenoid valve unit, never attempt to hold it in position by means of the pipes connected to it. ・Fix the solenoid valve by applying the mounting screws and/or mounting plate to the solenoid valve.

⚠ CAUTION :	If you choose to mount the solenoid valve manifold on a DIN rail, make sure that the DIN rail is strong enough. ・If the strength is insufficient, mount the manifold body directly.

Please secure enough space around the solenoid valve for mounting, dismounting and piping work.

If not mounted correctly, this may cause the manifold to drop or be damaged. Carefully check this point. Fix the DIN rail on the mounting surface at intervals of 50 mm when using it under the environment of vibration or impact. Before starting the operation, make sure that the installation status is correct.

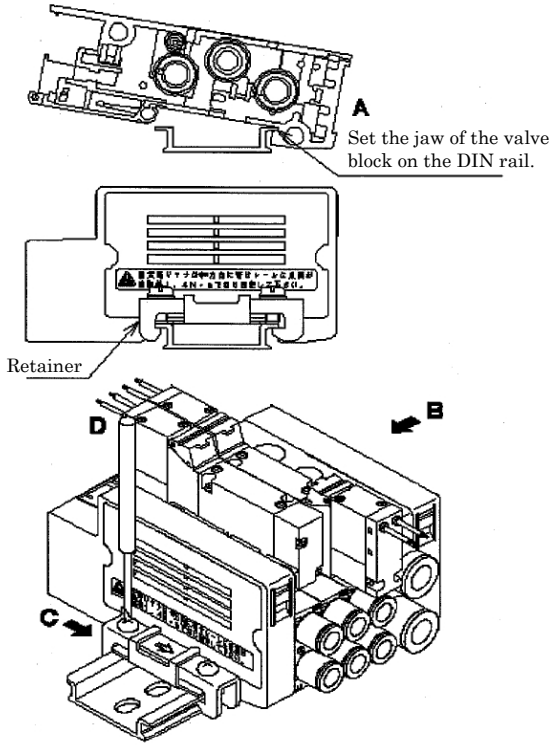
●Installation using a DIN rail

A) Set the jaw of the retainer on the DIN rail.

B) While holding down the retainer to the gap between blocks,

C) Press the retainer toward the direction of arrow

D) Tightening the DIN rail set screw.
Tightening torque: 1.4±0.2 N･m.



4.3 Piping

⚠ CAUTION :

a) Observe the recommended tightening torque when connecting pipes.
- Observing the recommended tightening torque prevents air leakage and damage to the screw threads. To prevent damage to the screw threads, first use your hand to lightly tighten the screw and then use a tool to tighten the screw to the recommended torque.

b) Make sure that the pipes will not be disconnected at the joints by mechanical movements, vibrations or tension.
- If the exhaust piping of the pneumatic circuit is disconnected, the actuator speed control is disabled.
- If the above happens to a chuck holding mechanism, the chuck will open. The inadvertent opening of the chuck may cause a serious accident.

c) When supplying the compressed air for the first time after completing the piping, be sure to check every joint in the piping for air leakage.

d) When supplying the compressed air for the first time after completing the piping, increase the air pressure gradually but never introduce a highly-pressurized air suddenly.
- A sudden introduction of a highly-pressurized air may disconnect pipes at joints and/or cause the tubes to jump around, any of which may cause an injury.

e) Do not decrease the inside diameter of the piping from any of the solenoid valve exhaust ports to a diameter less than the exhaust pipe connecting port size.
- Normal operation of the actuator depends on the smoothness of the exhaust flow. With a manifold system, a restriction to the exhaust flow may prevent normal operation of other solenoid valves.

f) Removal of foreign matter
- Rust and other foreign matter in the pneumatic circuit may cause a malfunction or leakage from the valve seat. Insert a filter (maximum allowable particle size 5μm or less) immediately upstream of the solenoid valve.

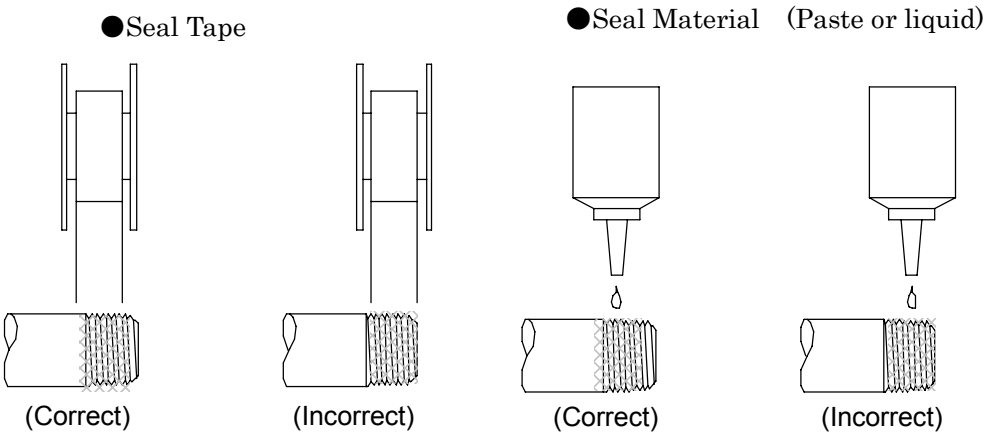
g) Air supply
- Do not restrict the flow of air through the air supply piping. With a manifold system with multiple stations, a drop in the air supply pressure may cause trouble through a delay in the operation timing.

Tightening torque

Joint screw	Tightening torque N·m
M5	0.5 to 1
Rc1/8	3 to 5

4.3.1 Seal material

When using seal material, take care to avoid getting it in the pipes or overflowing on the exterior surface of the pipes.



When applying fluororesin sealing tape to the screw threads, wind the tape two or three times around the threads but leave the one or two threads at the pipe end uncovered. Firmly press the tape against the threads using the tip of your fingernail. When applying liquid type seal material, apply the material to all the threads except one or two threads at the pipe end and take care not to apply too much of it.

Never apply the seal material to the female threads in the device side piping port.

4.3.2 Flushing

Before connecting pipes, flush the interiors of the tubes, solenoid valves, and connected devices to remove foreign matter.

4.3.3 M5 screw fitting

An M5 screw fitting is sealed using a gasket (Model No. for the gasket only: FGS).Do not retighten the fitting screw when pressure is generated in the pneumatic circuit. Design and construct the piping system in such a way that the valves may be removed and reinstalled if a trouble should happen.

4.3.4 Blow circuit

Do not open the cylinder port circuit to the atmosphere because a drop in the air supply pressure may cause malfunction. Select the external pilot type design instead of the internal pilot type design. The lowest allowable pressure with the internal pilot type design is 0.2 MPa.

4.3.5 Exhaust port

Minimize the restriction to the flow of the exhaust air because such restriction may cause a delay in the cylinder response. If such a delay happens, the speed needs to be adjusted between the cylinder and solenoid valve.

4.3.6 Pipe connections

(1) Tubes to be used

For use with solenoid valves with push-in joints, select tubes of the type specified by us:

Soft nylon tubes (F-1500 Series)
Urethane tubes (U-9500 Series)

(2) For installation at a site that has spatters in the air, select incombustible tubes or metal pipes.

(3) For a piping used for both hydraulic and pneumatic controls, select a hydraulic hose. When combining a spiral tube with a standard push-in joint, fix the tube origin using a hose band. Otherwise the rotation of the tube will decrease the efficiency of the clamping.
For use in a high-temperature atmosphere, select fastener joints instead of push-in joints.

(4) When selecting from tubes commercially available, carefully study the accuracy of the outside diameter as well as the wall thickness and the hardness. The hardness of a polyurethane tube should be 93° or more (as measured by a rubber hardness meter).
With a tube that does not have a sufficient accuracy of the outside diameter or the specified hardness, a decrease in the chucking force may cause disconnection or difficulty in inserting.

Tube dimensions

Outside diameter mm	Inside diameter mm	
	Nylon	Polyurethane
φ4	φ2.5	φ2
φ6	φ4	φ4
φ8	φ5.7	φ5
φ10	φ7.2	φ6.5

Outside diameter allowance

Soft or hard nylon	±0.1mm
Polyurethane φ4, φ6	+0.1mm -0.15mm
Polyurethane φ8, φ10	+0.1mm -0.2mm

(5) Minimum bending radius of tubes

Observe the minimum bending radius of tubes. Neglecting the minimum bending radius may cause disconnection or leaks.

Tube bore	Minimum bending radius mm	
	Nylon	Polyurethane
φ4	10	10
φ6	20	20
φ8	30	30
φ10	40	40

(6) Cutting a tube

To cut a tube, use a tube cutter to cut the tube perpendicularly to the length of the tube. Inserting an obliquely cut end of a tube may cause air leakage.

(7) Tube connections

Do not bend the tube immediately at the joint connection point. Lead it out straight from the end of the joint for a length equal to or greater than the outside diameter of the tube. The tension applied sideways through the tube should not exceed 40N.

(8) Blank plug to be used

For use with a solenoid valve with a push-in joint, select the blank plug specified by us:

Blank plug GWP□-B Series

4.4 Wiring

⚠ WARNING: When carrying out electrical connections, please perform disassembling and assembling work after reading the Instruction Manual carefully and with full understanding of its contents.

- Your understanding of the structure of solenoid valve and its operation principle is required in order to secure the safety.

⚠ CAUTION: Before supplying the power, check the power supply voltage and the current type (AC or DC).

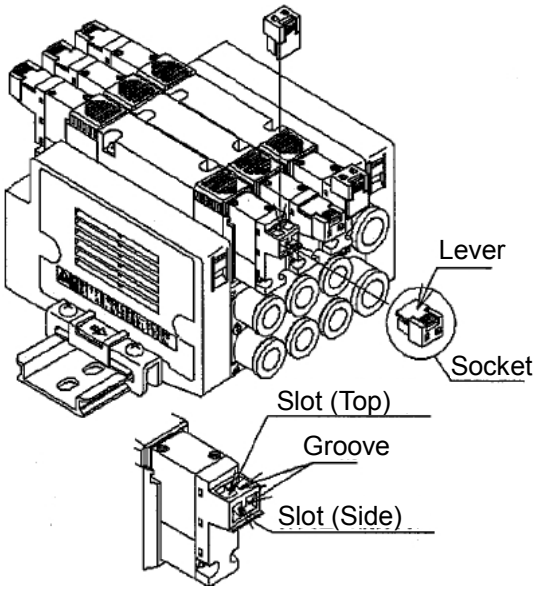
4.4.1 How to use E-connector

The E-connector is a top/side common connector to which the sockets can be connected to either the upward or lateral directions. The socket assembly is enclosed with the valve.
Select the connection direction based on installation.

1) How to mount/dismount socket

(1) When installing the socket, hold the lever and socket with your fingers and insert straight into the square window on the connector. Align the lever with the groove on the connector and lock. When installing from the top, face the socket so that the lever is in front. When installing from the side, face the socket so that the lever is on the top.

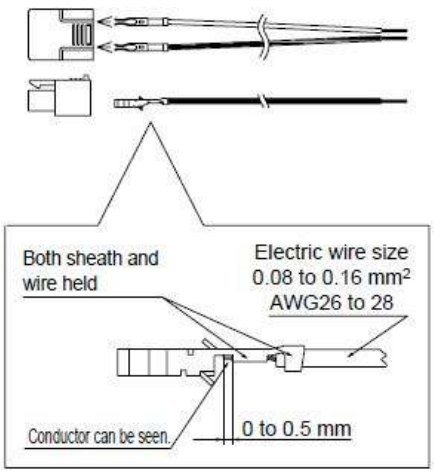
(2) When removing the socket, press down the lever to release jaws from the groove, then pull straight out.



2) How to connect lead wire

(1) Peal sheath of lead wire 3 mm from the top, arrange the top of conductor, and insert the conductor into the crimp terminal and crimp them with a crimping tool. Crimp both the sheath and wire, and check that 0 to 0.5 mm of the core wire end is visible.

(2) After crimping, face the contact terminal as shown below, and insert into the square window on the socket. The terminal locks when it is inserted into the back. After insertion, tug lightly on the terminal to check that it is locked.

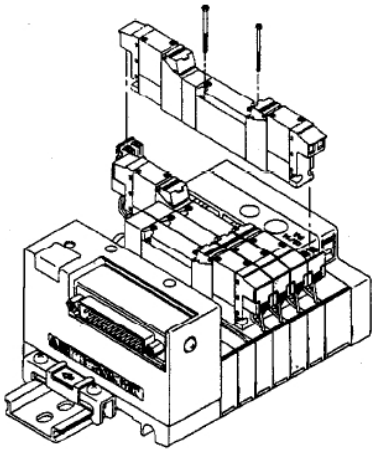


4.4.2 How to use A-connector

The A-connector is dedicated for the reduced wiring manifold, and is connected from the bottom.

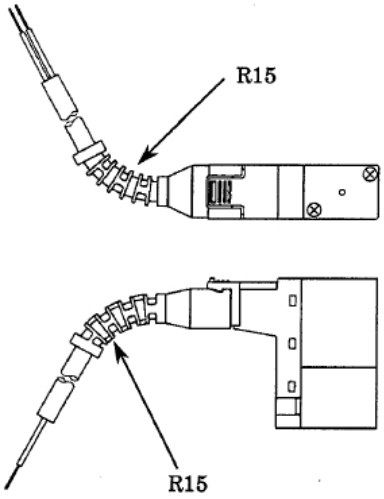
The same precaution as when using the E-connector is required when installing and removing the socket.

When mounting and dismounting a socket, exercise the same caution as that when using E-type connectors.



4.4.3 How to use E*J type connector (Socket with cover type)

Dimensions below apply as the lead bending limit.



4.4.4 How to use DIN terminal box

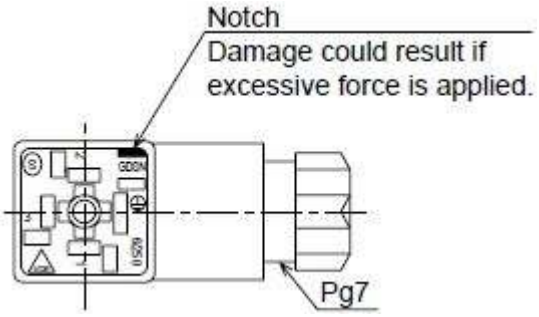
1) Disassembling

(1) Disassembling Loosen the screw (1), and pull the cover (2) in the direction of screw (1). The connector will come off the coil assembly (12).

(2) Pull the screw (1) out of the cover (2).

(3) There is a notch (9) (next to GDSN mark) on the bottom of the terminal block (3). Insert a small flat-tip screwdriver between the housing (2) and terminal block (3), and twist it. The terminal block (3) will come off the cover (2). (Refer to Fig. 1.)
Take care not to apply excessive force as there is a risk of damage.

(4) Remove the cable gland (4), and remove the washer (5) and rubber packing (6).

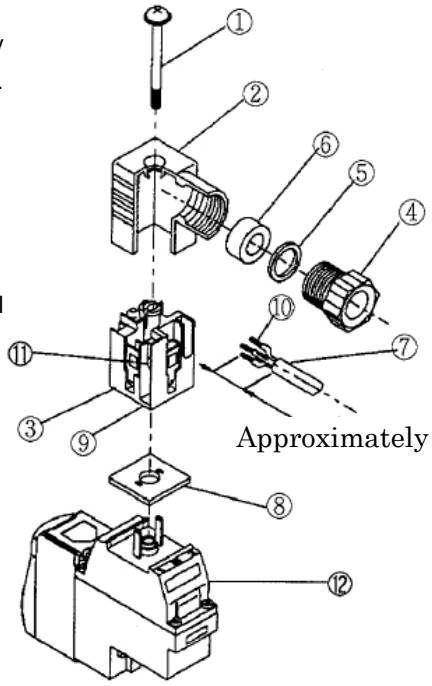


2) Wiring

(1) Press-fit a rod terminal (10) to the lead (stranded wire) of the cable (7). Note that the solder less terminals must be prepared by the customer. For a single wire, the rod terminal is not necessary. A bare stranded wire can be used for wiring.
Note 1: Avoid wiring of a stranded wire with solder finish at the end. Connect to terminals 1 and 2. There is no polarity.

(2) Pass the cable gland (4), washer (5) and rubber packing (6) in order through the cable (7), and insert into cover (2).

(3) Loosen the screw (11) in the terminal block (3), insert the terminal [10] and then re-tighten the screw (11).
・Recommended tightening torque is 0.2 to 0.25 N·m.
・The applicable outside diameter of the cable (7) is VCTF2 (3) conductor (φ3.5 to 7) specified in JISC3306.
・The lead wire sheath stripping length of the cable (7) is approximately 10 mm.
・When using the solder less terminals, select H0.5/6 (0.3 to 0.5mm2) or H0.75/6 (0.75mm2) manufactured by Wide Muller Japan Co. Ltd. or its equivalent.

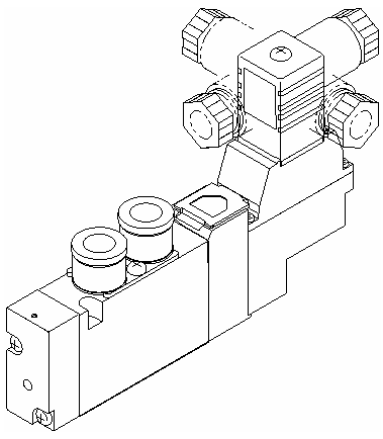


3) Assembly

(1) Set the connected terminal block (3) into the cover (2). (Press in until a click is heard.) * The terminal block can be set in four directions. (Refer to right sketch.)

(2) Set the rubber packaging (6) and washer (5) in order into the cover (2) cable lead-in port, and then securely tighten the cable gland (4).
Remarks: The reference tightening torque for the cable gland is 1.0 to 1.5 N·m.
Check that the cable cannot be pulled off.

(3) Set the gasket (8) between the bottom of the terminal block and the coil assembly (12) plug, and insert the connector.
Insert the screw 1 from the top of the cover (2) and tighten.
Remarks: Recommended tightening torque of a screw is 0.2 to 0.25 N·m.



4.4.5 Common terminal stand type: Wiring style T10/T11

1) Points requiring your attention with common terminal stand type (T10/T11):

(1) The internal common wiring for common terminal stand type has already been made. So, please unify the power source of manifold.
In case of a PC output unit of independent contact point type, apply a common wiring at the contact point.

(2) In order to avoid any improper wiring, please make sure again that the number of the station is corresponding to the solenoid. Follow the wiring style 3).

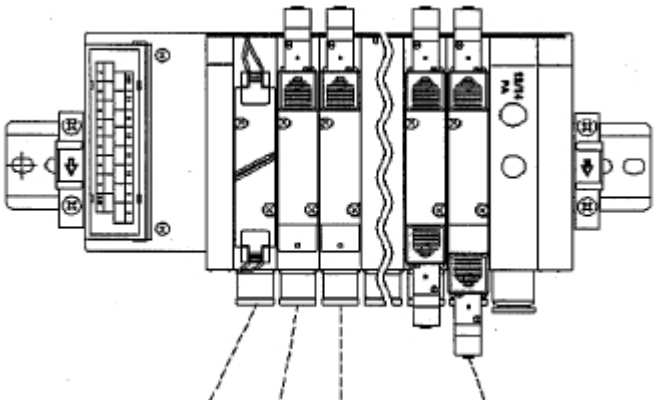
(3) The system is mot functional if the number of solenoid exceeds 14(T10) or 24(T11).

(4) The number of the manifold station has been set in the order starting from left with the piping port facing front. (See figure.)

(5) Voltage drop may be caused when energized simultaneously or depending on the cable length. Please make sure that the voltage drop against solenoid valve is kept within 10% of rated voltage.

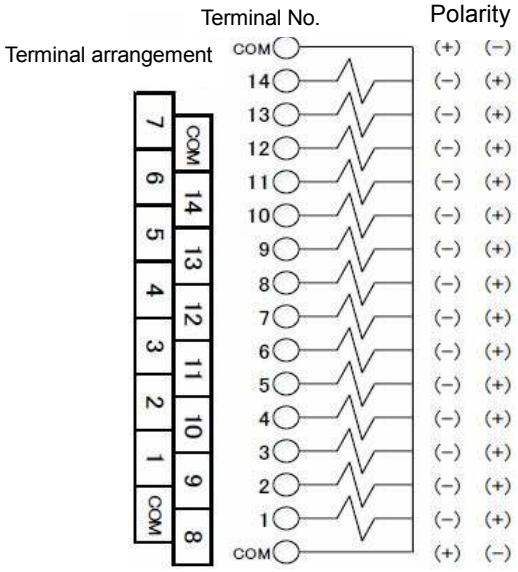
(6) For connection, use Y-terminal or ring terminal. For crimp terminal, please use the terminal for M3 with width 6.2mm or less. If you connect the lead wire directly, improper operation of the solenoid valve may be caused due to disconnection, contact failure, etc.

(7) Proper tightening torque of wiring screw : 0.6N･m(T10), 0.3N･m(T11)

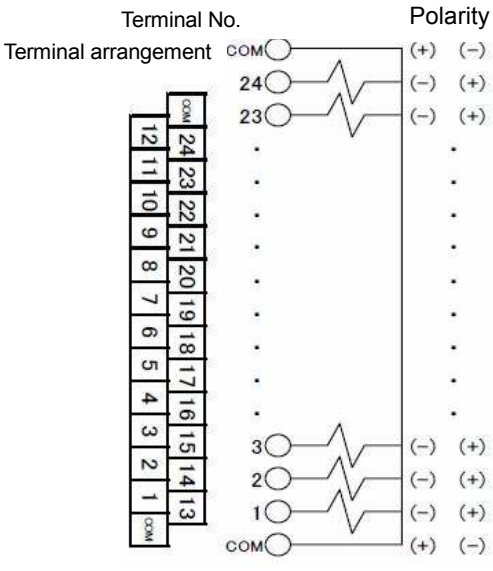


2) Internal wiring

T10((Up to 14 solenoids))



T11((Up to 24 solenoids))



3) Wiring style T10

Maximum number of manifold station varies depending on the model. Please check the specifications for each model.

Note) Valve No. 1a, 2a, 2b , etc. the numbers indicate the 1st station and 2nd station respectively, and alphabet (a) means the solenoid on a-side and (b) means the solenoid on b-side respectively.

Terminal strip No.

	COM	14	13	12	11	10	9	8
7	6	5	4	3	2	1	COM	

<Standard wiring>

- In case of a single solenoid valve
  (Max. number of MF station: 14)

Terminal strip No.	14	13	12	11	10	9	8
Valve No.	14a	13a	12a	11a	10a	9a	8a
Terminal strip No.	7	6	5	4	3	2	1
Valve No.	7a	6a	5a	4a	3a	2a	1a

- In case of a double solenoid valve
  (Max. number of MF station: 7)

Terminal strip No.	14	13	12	11	10	9	8
Valve No.	7b	7a	6b	6a	5b	5a	4b
Terminal strip No.	7	6	5	4	3	2	1
Valve No.	4a	3b	3a	2b	2a	1b	1a

- In case of a mixture (Mixed installation of single and double)
  (Max. number of solenoid: 14)

Terminal strip No.	14	13	12	11	10	9	8
Valve No.	11a	10a	9a	8a	7b	7a	6a
Terminal strip No.	7	6	5	4	3	2	1
Valve No.	5a	4b	4a	3b	3a	2a	1a

<Double wiring>

- In case of a single solenoid valve
  (Max. number of MF station: 7)

Terminal strip No.	14	13	12	11	10	9	8
Valve No.	(Empty)	7a	(Empty)	6a	(Empty)	5a	(Empty)
Terminal strip No.	7	6	5	4	3	2	1
Valve No.	4a	(Empty)	3a	(Empty)	2a	(Empty)	1a

- In case of a double solenoid valve
  (Max. number of MF station: 7)

Terminal strip No.	14	13	12	11	10	9	8
Valve No.	7b	7a	6b	6a	5b	5a	4b
Terminal strip No.	7	6	5	4	3	2	1
Valve No.	4a	3b	3a	2b	2a	1b	1a

- In case of a mixture (Mixed installation of single and double)
  (Max. number of solenoid: 14)

Terminal strip No.	14	13	12	11	10	9	8
Valve No.	7b	7a	(Empty)	6a	(Empty)	5a	4b
Terminal strip No.	7	6	5	4	3	2	1
Valve No.	4a	(Empty)	3a	2b	2a	1b	1a

4) Wiring style T11

Maximum number of manifold station varies depending on the model. Please check the specifications for each model.

Note) Valve No. 1a, 2a, 2b , etc. the numbers indicate the 1st station and 2nd station respectively, and alphabet (a) means the solenoid on a-side and (b) means the solenoid on b-side respectively.

Terminal strip No.

COM	24	23	22	21	20	19	18	17	16	15	14	13
12	11	10	9	8	7	6	5	4	3	2	1	COM

<Standard wiring>

- In case of a single solenoid valve

(Max. number of MF station: 24)

Terminal strip No..	24	23	22	21	20	19	18	17	16	15	14	13
Valve No..	24a	23a	22a	21a	20a	19a	18a	17a	16a	15a	14a	13a
Terminal strip No..	12	11	10	9	8	7	6	5	4	3	2	1
Valve No..	12a	11a	10a	9a	8a	7a	6a	5a	4a	3a	2a	1a

- In case of a double solenoid valve

(Max. number of MF station: 12)

Terminal strip No..	24	23	22	21	20	19	18	17	16	15	14	13
Valve No..	12b	12a	11b	11a	10b	10a	9b	9a	8b	8a	7b	7a
Terminal strip No..	12	11	10	9	8	7	6	5	4	3	2	1
Valve No..	6b	6a	5b	5a	4b	4a	3b	3a	2b	2a	1b	1a

- In case of a mixture (Mixed installation of single and double)

(Max. number of solenoid: 24)

Terminal strip No..	24	23	22	21	20	19	18	17	16	15	14	13
Valve No..	18b	18a	17a	16a	15a	14a	13a	12b	12a	11b	11a	10a
Terminal strip No..	12	11	10	9	8	7	6	5	4	3	2	1
Valve No..	9a	8a	7b	7a	6a	5a	4b	4a	3b	3a	2a	1a

<Double wiring>

- In case of a single solenoid valve

(Max. number of MF station: 12)

Terminal strip No..	24	23	22	21	20	19	18	17	16	15	14	13
Valve No..	(Empty)	12a	(Empty)	11a	(Empty)	10a	(Empty)	9a	(Empty)	8a	(Empty)	7a
Terminal strip No..	12	11	10	9	8	7	6	5	4	3	2	1
Valve No..	(Empty)	6a	(Empty)	5a	(Empty)	4a	(Empty)	3a	(Empty)	2a	(Empty)	1a

- In case of a double solenoid valve

(Max. number of MF station: 12)

Terminal strip No..	24	23	22	21	20	19	18	17	16	15	14	13
Valve No..	12b	12a	11b	11a	10b	10a	9b	9a	8b	8a	7b	7a
Terminal strip No..	12	11	10	9	8	7	6	5	4	3	2	1
Valve No..	6b	6a	5b	5a	4b	4a	3b	3a	2b	2a	1b	1a

- In case of a mixture (Mixed installation of single and double)

(Max. number of solenoid: 24)

Terminal strip No..	24	23	22	21	20	19	18	17	16	15	14	13
Valve No..	12b	12a	11b	11a	(Empty)	10a	(Empty)	9a	(Empty)	8a	7b	7a
Terminal strip No..	12	11	10	9	8	7	6	5	4	3	2	1
Valve No..	(Empty)	6a	(Empty)	5a	4b	4a	3b	3a	(Empty)	2a	(Empty)	1a

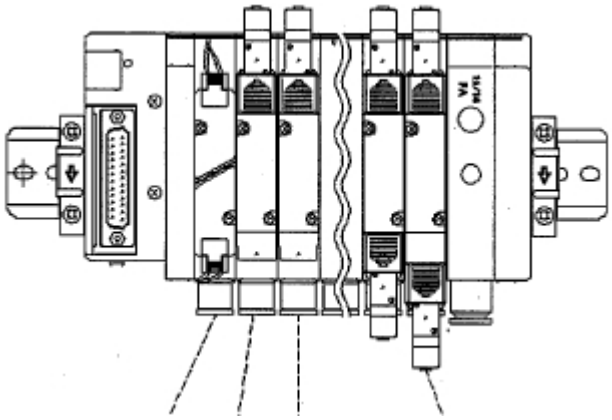
4.4.6 D sub-connector type : The connector for the T30

1) T30 connector

The connector for the T30, which is usually called the D sub-connector, is widely used in FA and OA equipment. The 25P type, in particular, is the connector specified in the RS232C standard for use in personal computer communication.

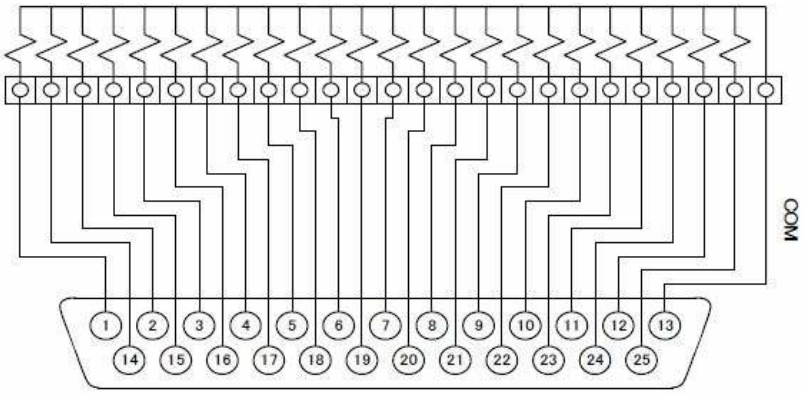
2) Points requiring your attention with the connector type (T30).

(1) It is necessary to match the signal arrangement of the PLC output unit and that on the valve side.
(2) The operation power is DC24V or DC12V.
(3) If the number of solenoid exceeds 24this cannot be supported, which please bear in your mind in advance.
(4) The number of the manifold station has been set in the order starting from left with the piping port facing front. (See figure.)
(5) Voltage drops will occur depending on cable lengths or at the time of simultaneous power supply. Make sure that a voltage drop for the solenoid is within 10% of the rated voltage.



The number of the manifold station. 1st 2nd 3rd n th

3) Internal circuit



4) Wiring style T30

Maximum number of manifold station varies depending on the model. Please check the specifications for each model.

Note) Valve No. 1a, 2a, 2b , etc. the numbers indicate the 1st station and 2nd station respectively, and alphabet (a) means the solenoid on a-side and (b) means the solenoid on b-side respectively.

Terminal strip No.

COM	24	23	22	21	20	19	18	17	16	15	14	13
12	11	10	9	8	7	6	5	4	3	2	1	COM

<Standard wiring>

- In case of a single solenoid valve

(Max. number of MF station: 24)

Terminal strip No..	24	23	22	21	20	19	18	17	16	15	14	13
Valve No..	24a	23a	22a	21a	20a	19a	18a	17a	16a	15a	14a	13a
Terminal strip No..	12	11	10	9	8	7	6	5	4	3	2	1
Valve No..	12a	11a	10a	9a	8a	7a	6a	5a	4a	3a	2a	1a

- In case of a double solenoid valve

(Max. number of MF station: 12)

Terminal strip No..	24	23	22	21	20	19	18	17	16	15	14	13
Valve No..	12b	12a	11b	11a	10b	10a	9b	9a	8b	8a	7b	7a
Terminal strip No..	12	11	10	9	8	7	6	5	4	3	2	1
Valve No..	6b	6a	5b	5a	4b	4a	3b	3a	2b	2a	1b	1a

- In case of a mixture (Mixed installation of single and double)

(Max. number of solenoid: 24)

Terminal strip No..	24	23	22	21	20	19	18	17	16	15	14	13
Valve No..	18b	18a	17a	16a	15a	14a	13a	12b	12a	11b	11a	10a
Terminal strip No..	12	11	10	9	8	7	6	5	4	3	2	1
Valve No..	9a	8a	7b	7a	6a	5a	4b	4a	3b	3a	2a	1a

<Double wiring>

- In case of a single solenoid valve

(Max. number of MF station: 12)

Terminal strip No..	24	23	22	21	20	19	18	17	16	15	14	13
Valve No..	(Empty)	12a	(Empty)	11a	(Empty)	10a	(Empty)	9a	(Empty)	8a	(Empty)	7a
Terminal strip No..	12	11	10	9	8	7	6	5	4	3	2	1
Valve No..	(Empty)	6a	(Empty)	5a	(Empty)	4a	(Empty)	3a	(Empty)	2a	(Empty)	1a

- In case of a double solenoid valve

(Max. number of MF station: 12)

Terminal strip No..	24	23	22	21	20	19	18	17	16	15	14	13
Valve No..	12b	12a	11b	11a	10b	10a	9b	9a	8b	8a	7b	7a
Terminal strip No..	12	11	10	9	8	7	6	5	4	3	2	1
Valve No..	6b	6a	5b	5a	4b	4a	3b	3a	2b	2a	1b	1a

- In case of a mixture (Mixed installation of single and double)

(Max. number of solenoid: 24)

Terminal strip No..	24	23	22	21	20	19	18	17	16	15	14	13
Valve No..	12b	12a	11b	11a	(Empty)	10a	(Empty)	9a	(Empty)	8a	7b	7a
Terminal strip No..	12	11	10	9	8	7	6	5	4	3	2	1
Valve No..	(Empty)	6a	(Empty)	5a	4b	4a	3b	3a	(Empty)	2a	(Empty)	1a

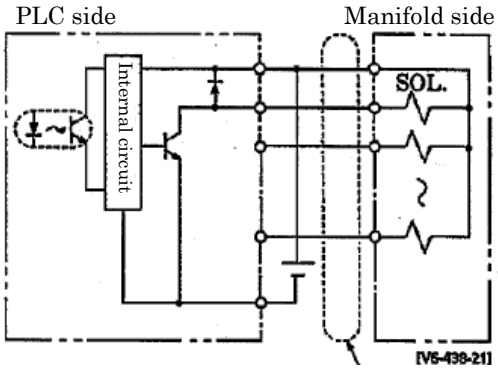
5) Connection to PLC

The common wiring has been internally done on the manifold side.

Since the electromagnetic valve has no polarity, it can be connected to either the NPN output or PNP output of the DC output unit of the PLC.

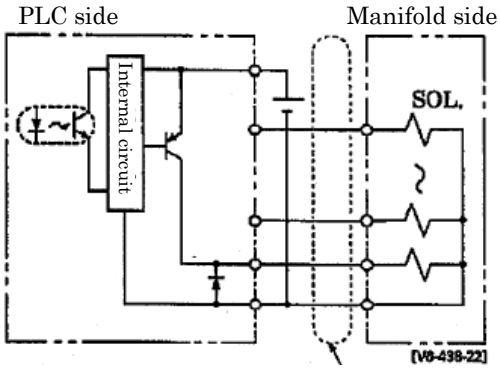
Wire each unit in the following manner.

●DC output unit (NPN output)

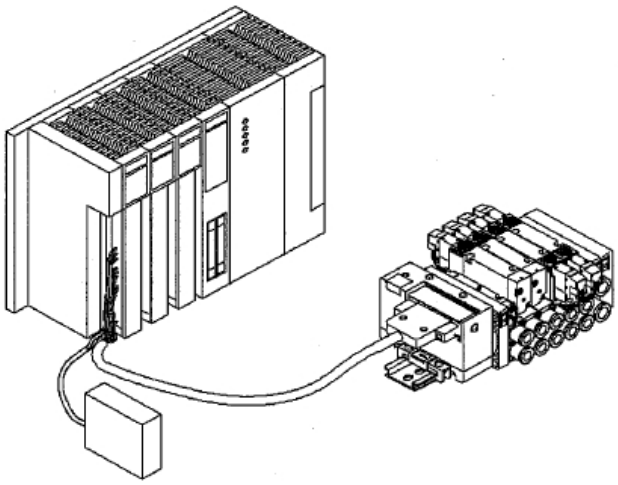


Multi core cable, etc

●DC output unit (PNP output)



Multi core cable, etc



6) Cable production

We recommend the following for the valve side in the production of the connection cable.

Name	Model	Manufacturer
D sub-connector socket solder type	HDBB-25S	Hirose Electric Co., Ltd.
D sub-connector socket solder type	JAZ-25S	Nippon Atchaku Tanshi
D sub-connector socket crimp type	CDB-25S	Hirose Electric Co., Ltd.
D sub-connector socket crimp type	JAC-25S	Nippon Atchaku Tanshi
Plug case (for the solder type) (with M2.6 screw)	HDB-CTF	Hirose Electric Co., Ltd.
Plastic cover with M2.6 screw	JCB-25M	Nippon Atchaku Tanshi

Avoid the use of the press-connect type as much as possible as it has small electric capacity and the fine core wire of the able causes large voltage drop.

7) CKD cable specifications

(CKD cables of the following models can be used)

Model N4T – CABLE – D 0 0 – 1 (Note 1) (Note 2)

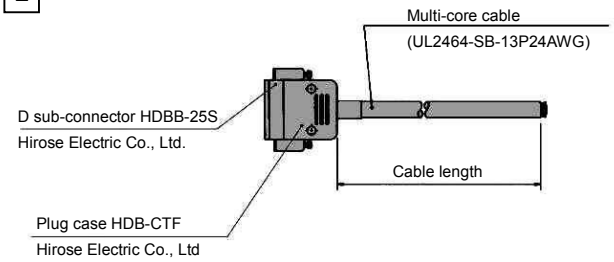
Note 1: Connecting method on the user side

0	Cutting only
1	With round crimp terminal for M3.5 screws

Note 2: Cable length L

1	1m
3	3m
5	5m

● N4T- CABLE- D00- L

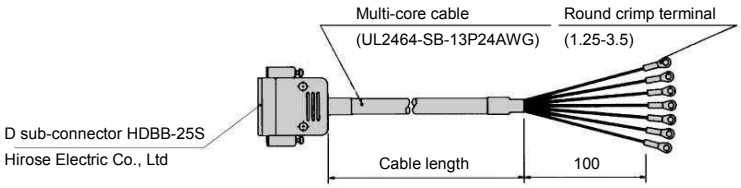


D sub-connector terminal numbers and core wires

D sub-connector terminal No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Wire end identify-cation	Color of insulator	Orange	Orange	Yellow	Yellow	Green	Green	Gray	Gray	White	White	Orange	Orange	Yellow	Yellow	Green
	Kind of markings	1-dot										2-dots				
	Color of marking	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black

D sub-connector terminal No.		16	17	18	19	20	21	22	23	24	25
Wire end identify-cation	Color of insulator	Green	Gray	Gray	White	White	Orange	Orange	Yellow	Yellow	Green
	Kind of markings	2-dots					3-dots				
	Color of marking	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black

● N4T- CABLE- D01- L



D sub-connector terminal numbers and core wires

D sub-connector terminal No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Wire end identify-cation	Color of insulator	Orange	Orange	Yellow	Yellow	Green	Green	Gray	Gray	White	White	Orange	Orange	Yellow	Yellow	Green
	Kind of markings	1-dot										2-dots				
	Color of marking	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black
Marked tube No.		1	2	3	4	5	6	7	8	9	10	Cut off	Cut off	13	14	15

D sub-connector terminal No.		16	17	18	19	20	21	22	23	24	25
Wire end identify-cation	Color of insulator	Green	Gray	Gray	White	White	Orange	Orange	Yellow	Yellow	Green
	Kind of markings	2-dots					3-dots				
	Color of marking	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black
Marked tube No.		16	17	18	19	20	21	22	23	24	25

* If more than 20 D-sub connector terminals are used, use the D00 type.

4.4.7 Flat cable type : The connector for the T50

1) Flat cable connector

The connector used in the T50 complies with the MIL standard (MIL-C-83503). Its flat-cable press-connection design makes wiring work easy. Pin numbers may differ from one PC manufacturer to another, but their functions are the same. Use the connector and the reversed triangle mark in the drawing below as a reference point for arrangement. The triangle mark serves as a reference point for both the plug and the socket.

2) Cautions regarding the connector type (T50)

(1) It is necessary to match the signal arrangement of the PC output unit and that of the valve side. Since direct connection with the PC is limited, use cables specified by the PC manufacturer. Refer to 5)。

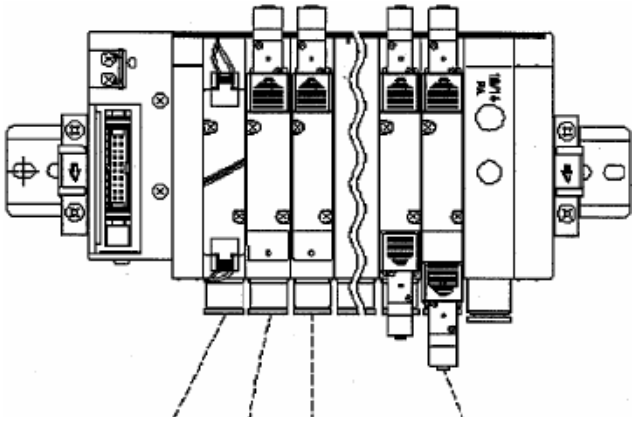
(2) The operation power is DC24V or DC12V.

(3) When driving the T50 by an ordinary output unit, use the + terminals (20, 10) of the 20-P connector as the + side common and use an NPN transistor output open collector type as the drive circuit.

(4) Make sure to connect the manifold to the output unit. Never connect it to the input unit as a problem will involve not only this unit, but also other related equipment as well, seriously aggravating the situation.

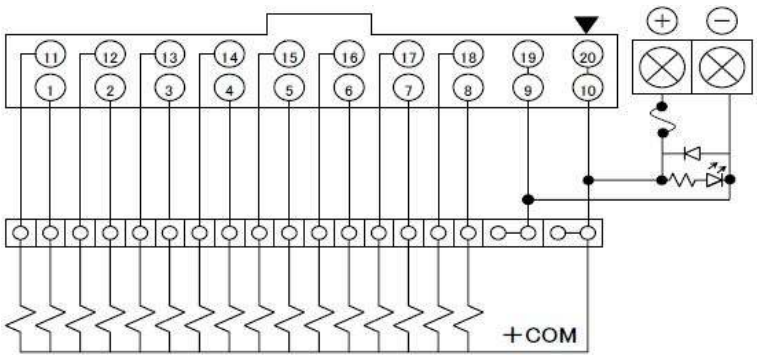
(5) The number of the manifold station has been set in the order starting from left with the piping port facing front. (Refer to the sketch below.)。

(6) Voltage drops will occur depending on cable lengths or at the time of simultaneous power supply. Make sure that a voltage drop for the solenoid is within 10% of the rated voltage.



The number of the manifold station. 1st 2nd 3rd n th

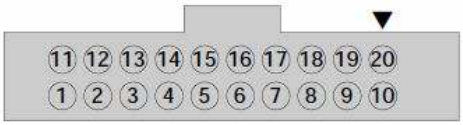
Internal wiring



4) Wiring style T50

Maximum number of manifold station varies depending on the model. Please check the specifications for each model.

Note) Valve No. 1a, 2a, 2b , etc. the numbers indicate the 1st station and 2nd station respectively, and alphabet (a) means the solenoid on a-side and (b) means the solenoid on b-side respectively.



<Standard wiring>

- In case of a single solenoid valve

(Max. number of MF station: 16) *1 : − electric power supply *2 : + electric power supply

Terminal strip No.	11	12	13	14	15	16	17	18	19	20
Valve No.	9a	10a	11a	12a	13a	14a	15a	16a	*1	*2
Terminal strip No.	1	2	3	4	5	6	7	8	9	10
Valve No.	1a	2a	3a	4a	5a	6a	7a	8a	*1	*2

- In case of a double solenoid valve

(Max. number of MF station: 8) *1 : − electric power supply *2 : + electric power supply

Terminal strip No.	11	12	13	14	15	16	17	18	19	20
Valve No.	5a	5b	6a	6b	7a	7b	8a	8b	*1	*2
Terminal strip No.	1	2	3	4	5	6	7	8	9	10
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b	*1	*2

- In case of a mixture (Mixed installation of single and double)

(Max. number of solenoid: 16) *1 : − electric power supply *2 : + electric power supply

Terminal strip No.	11	12	13	14	15	16	17	18	19	20
Valve No.	7a	7b	8a	9a	10a	10b	11a	11b	*1	*2
Terminal strip No.	1	2	3	4	5	6	7	8	9	10
Valve No.	1a	2a	3a	3b	4a	4b	5a	6a	*1	*2

<Double wiring>

- In case of a single solenoid valve

(Max. number of MF station: 8) *1 :: − electric power supply *2 : + electric power supply

Terminal strip No.	11	12	13	14	15	16	17	18	19	20
Valve No.	5a	(Empty)	6a	(Empty)	7a	(Empty)	8a	(Empty)	*1	*2
Terminal strip No.	1	2	3	4	5	6	7	8	9	10
Valve No.	1a	(Empty)	2a	(Empty)	3a	(Empty)	4a	(Empty)	*1	*2

- In case of a double solenoid valve

(Max. number of MF station: 8) *1 : − electric power supply *2 : + electric power supply

Terminal strip No.	11	12	13	14	15	16	17	18	19	20
Valve No.	5a	5b	6a	6b	7a	7b	8a	8b	*1	*2
Terminal strip No.	1	2	3	4	5	6	7	8	9	10
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b	*1	*2

- In case of a mixture (Mixed installation of single and double)

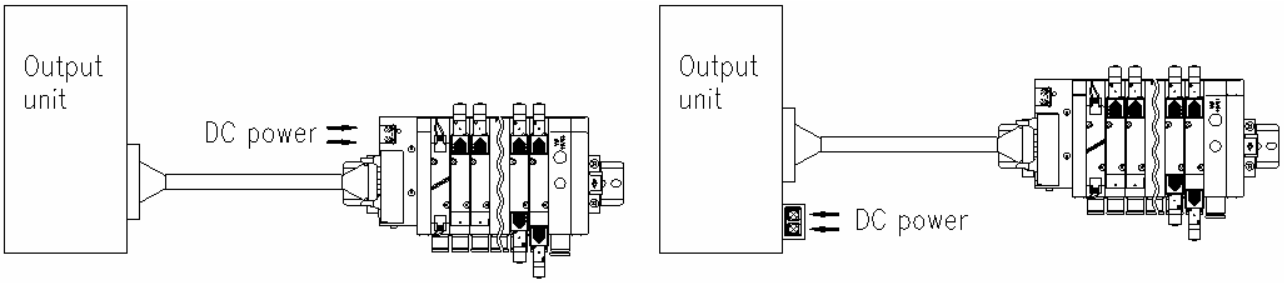
(Max. number of solenoid: 8) *1 : − electric power supply *2 : + electric power supply

Terminal strip No.	11	12	13	14	15	16	17	18	19	20
Valve No.	5a	(Empty)	6a	(Empty)	7a	7b	8a	(Empty)	*1	*2
Terminal strip No.	1	2	3	4	5	6	7	8	9	10
Valve No.	1a	(Empty)	2a	(Empty)	3a	3b	4a	4b	*1	*2

5) Power supply

The terminal stand is designed to accept power supplied from an external source when such outside power supply is needed. Supply the power to the wiring block or the input/output unit in the manner as shown in the following drawings. The power indicator lamp comes on after the connection has been made correctly. For wiring, check the polarity marks on the cover. Wiring errors cause malfunctions.

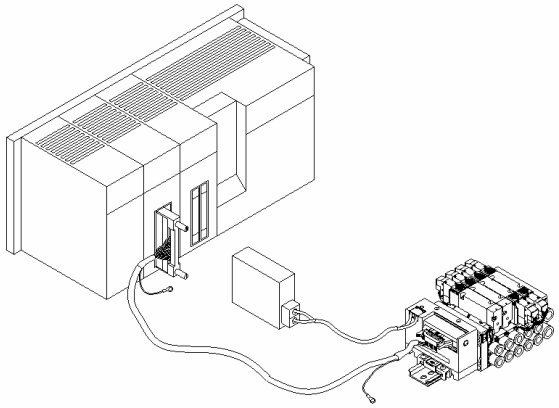
M3x6 screws are used for the terminal stand. Use M3 screws 6.4 or less in width to fasten the crimp terminals at the tightening torque of 0.3 to 0.5 N·m.



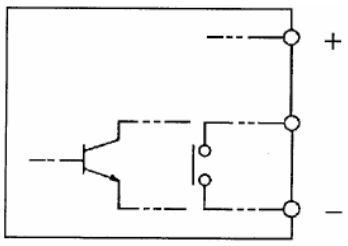
6) Connection to PLC

(1) The units described below can be directly connected to the output unit by the designated cable. Make sure to have the combinations right, as combination errors may cause serious problems. Use cables designated by the manufacturer.

Manufacturer	PLC model	Connecting cable model
OMRON Corporation	Model C200H-0D215 Mode C5000D415CN	Model G79-*C
	Model C500-0D213	Model G79－0*DC-*
Matsushita Electric Works, Ltd.	AFP33484	AY15133～7
	AFP53487	AY15223～7
Idec Izumi Corporation	PF3S-T532K	The same specifications as OMRON's



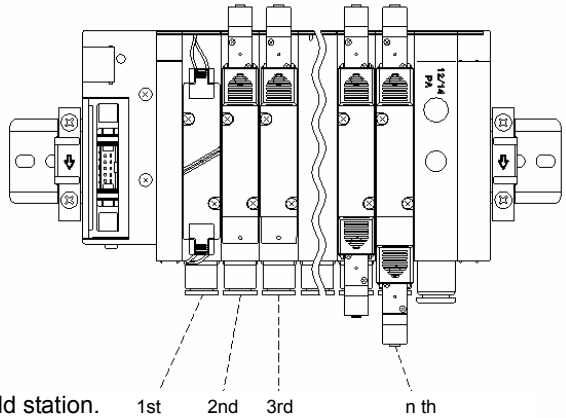
(2) When making a connection to units other than the PLC mentioned above, make sure that the signal line and power line are wired correctly. Even if the connectors have the same shape, their pin arrangements may not be the same with different manufacturers or unit types. Check the pint arrangement before the wiring. For the output unit, use one with a contact between the minus side of the power source and the output point, or one with an NPN transistor open collector output.



4.4.8 Flat cable connector type : The connector for the T51/T52/T53

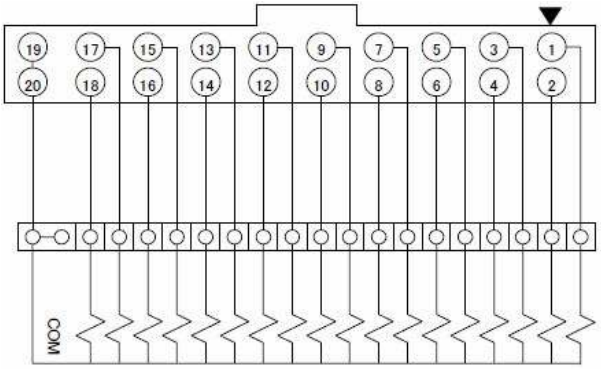
1) Cautions regarding the connector type (T51/T52/T53)

(1) The order of signals in the PLC output unit should match the order of signals in the solenoid valve system.
(2) The operation power is DC24V or DC12V.
(3) With the T51/T52/T53 type wiring, a general output unit should be used to drive the manifold.
(4) Make sure to connect the manifold to the output unit. Never connect it to the input unit as a problem will involve not only this unit, but also other related equipment as well, seriously aggravating the situation.
(5) The number of the manifold station has been set in the order starting from left with the piping port facing front. (Refer to the sketch below.)。
(6) Voltage drops will occur depending on cable lengths or at the time of simultaneous power supply. Make sure that a voltage drop for the solenoid is within 10% of the rated voltage.

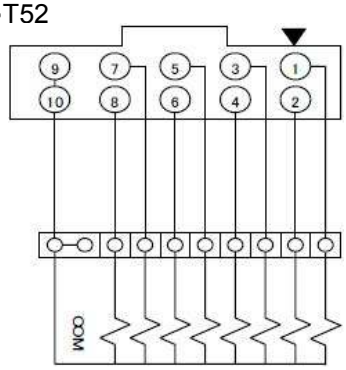


2) Internal wiring

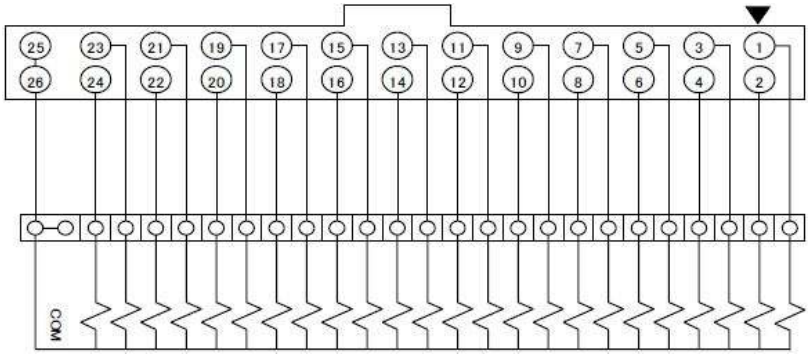
●T51



●T52



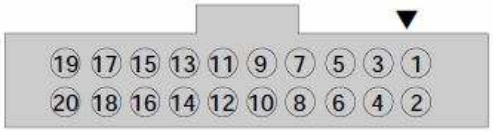
●T53



3) Wiring style T51

Maximum number of manifold station varies depending on the model. Please check the specifications for each model.

Note) Valve No. 1a, 2a, 2b , etc. the numbers indicate the 1st station and 2nd station respectively, and alphabet (a) means the solenoid on a-side and (b) means the solenoid on b-side respectively.



<Standard wiring>

- In case of a single solenoid valve

(Max. number of MF station: 18)

Terminal strip No.	19	17	15	13	11	9	7	5	3	1
Valve No.	COM	17a	15a	13a	11a	9a	7a	5a	3a	1a
Terminal strip No.	20	18	16	14	12	10	8	6	4	2
Valve No.	COM	18a	16a	14a	12a	10a	8a	6a	4a	2a

- In case of a double solenoid valve

(Max. number of MF station: 9)

Terminal strip No.	19	17	15	13	11	9	7	5	3	1
Valve No.	COM	9a	8a	7a	6a	5a	4a	3a	2a	1a
Terminal strip No.	20	18	16	14	12	10	8	6	4	2
Valve No.	COM	9b	8b	7b	6b	5b	4b	3b	2b	1b

- In case of a mixture (Mixed installation of single and double)

(Max. number of solenoid: 18)

Terminal strip No.	19	17	15	13	11	9	7	5	3	1
Valve No.	COM	12a	11a	10a	8a	7a	5a	4a	3a	1a
Terminal strip No.	20	18	16	14	12	10	8	6	4	2
Valve No.	COM	13a	11b	10b	9a	7b	6a	4b	3b	2a

<Double wiring>

- In case of a single solenoid valve

(Max. number of MF station: 9)

Terminal strip No.	19	17	15	13	11	9	7	5	3	1
Valve No.	COM	9a	8a	7a	6a	5a	4a	3a	2a	1a
Terminal strip No.	20	18	16	14	12	10	8	6	4	2
Valve No.	COM	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)

- In case of a double solenoid valve

(Max. number of MF station: 9)

Terminal strip No.	19	17	15	13	11	9	7	5	3	1
Valve No.	COM	9a	8a	7a	6a	5a	4a	3a	2a	1a
Terminal strip No.	20	18	16	14	12	10	8	6	4	2
Valve No.	COM	9b	8b	7b	6b	5b	4b	3b	2b	1b

- In case of a mixture (Mixed installation of single and double)

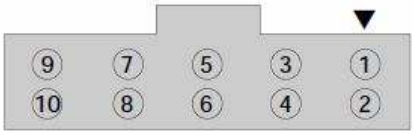
(Max. number of solenoid: 18)

Terminal strip No.	19	17	15	13	11	9	7	5	3	1
Valve No.	COM	9a	8a	7a	6a	5a	4a	3a	2a	1a
Terminal strip No.	20	18	16	14	12	10	8	6	4	2
Valve No.	COM	(Empty)	(Empty)	7b	(Empty)	(Empty)	4b	3b	(Empty)	(Empty)

4) Wiring style T52

Maximum number of manifold station varies depending on the model. Please check the specifications for each model.

Note) Valve No. 1a, 2a, 2b , etc. the numbers indicate the 1st station and 2nd station respectively, and alphabet (a) means the solenoid on a-side and (b) means the solenoid on b-side respectively.



<Standard wiring>

- In case of a single solenoid valve

(Max. number of MF station: 16)

Terminal strip No.	9	7	5	3	1
Valve No.	COM	7a	5a	3a	1a
Terminal strip No.	10	8	6	4	2
Valve No.	COM	8a	6a	4a	2a

- In case of a double solenoid valve

(Max. number of MF station: 8)

Terminal strip No.	9	7	5	3	1
Valve No.	COM	4a	3a	2a	1a
Terminal strip No.	10	8	6	4	2
Valve No.	COM	4b	3b	2b	1b

- In case of a mixture (Mixed installation of single and double)

(Max. number of solenoid: 16)

Terminal strip No.	9	7	5	3	1
Valve No.	COM	5b	4b	3a	1a
Terminal strip No.	10	8	6	4	2
Valve No.	COM	6a	5a	4a	2a

<Double wiring>

- In case of a single solenoid valve

(Max. number of MF station: 8)

Terminal strip No.	9	7	5	3	1
Valve No.	COM	4a	3a	2a	1a
Terminal strip No.	10	8	6	4	2
Valve No.	COM	(Empty)	(Empty)	(Empty)	(Empty)

- In case of a double solenoid valve

(Max. number of MF station: 8)

Terminal strip No.	9	7	5	3	1
Valve No.	COM	4a	3a	2a	1a
Terminal strip No.	10	8	6	4	2
Valve No.	COM	4b	3b	2b	1b

- In case of a mixture (Mixed installation of single and double)

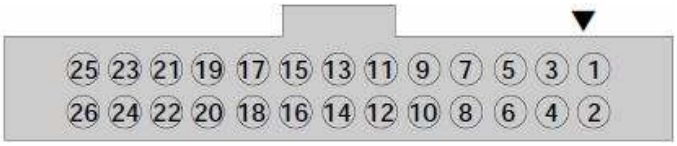
(Max. number of solenoid: 8)

Terminal strip No.	9	7	5	3	1
Valve No.	COM	4a	3a	2a	1a
Terminal strip No.	10	8	6	4	2
Valve No.	COM	4b	(Empty)	(Empty)	(Empty)

5) Wiring style T53

Maximum number of manifold station varies depending on the model. Please check the specifications for each model.

Note) Valve No. 1a, 2a, 2b , etc. the numbers indicate the 1st station and 2nd station respectively, and alphabet (a) means the solenoid on a-side and (b) means the solenoid on b-side respectively.



<Standard wiring>

- In case of a single solenoid valve

(Max. number of MF station: 18)

Terminal strip No.	25	23	21	19	17	15	13	11	9	7	5	3	1
Valve No.	COM	23a	21a	19a	17a	15a	13a	11a	9a	7a	5a	3a	1a
Terminal strip No.	26	24	22	20	18	16	14	12	10	8	6	4	2
Valve No.	COM	24a	22a	20a	18a	16a	14a	12a	10a	8a	6a	4a	2a

- In case of a double solenoid valve

(Max. number of MF station: 9)

Terminal strip No.	25	23	21	19	17	15	13	11	9	7	5	3	1
Valve No.	COM	12a	11a	10a	9a	8a	7a	6a	5a	4a	3a	2a	1a
Terminal strip No.	26	24	22	20	18	16	14	12	10	8	6	4	2
Valve No.	COM	12b	11b	10b	9b	8b	7b	6b	5b	4b	3b	2b	1b

- In case of a mixture (Mixed installation of single and double)

(Max. number of solenoid: 18)

Terminal strip No.	25	23	21	19	17	15	13	11	9	7	5	3	1
Valve No.	COM	16a	15a	14a	12a	10a	9a	8a	7a	5b	4b	3a	1a
Terminal strip No.	26	24	22	20	18	16	14	12	10	8	6	4	2
Valve No.	COM	16b	1b	14b	13a	11a	9b	8b	7b	6a	5a	4a	2a

<Double wiring>

- In case of a single solenoid valve

(Max. number of MF station: 9)

Terminal strip No.	25	23	21	19	17	15	13	11	9	7	5	3	1
Valve No.	COM	12a	11a	10a	9a	8a	7a	6a	5a	4a	3a	2a	1a
Terminal strip No.	26	24	22	20	18	16	14	12	10	8	6	4	2
Valve No.	COM	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)

- In case of a double solenoid valve

(Max. number of MF station: 9)

Terminal strip No.	25	23	21	19	17	15	13	11	9	7	5	3	1
Valve No.	COM	12a	11a	10a	9a	8a	7a	6a	5a	4a	3a	2a	1a
Terminal strip No.	26	24	22	20	18	16	14	12	10	8	6	4	2
Valve No.	COM	12b	11b	10b	9b	8b	7b	6b	5b	4b	3b	2b	1b

- In case of a mixture (Mixed installation of single and double)

(Max. number of solenoid: 18)

Terminal strip No.	25	23	21	19	17	15	13	11	9	7	5	3	1
Valve No.	COM	12a	11a	10a	9a	8a	7a	6a	5a	4a	3a	2a	1a
Terminal strip No.	26	24	22	20	18	16	14	12	10	8	6	4	2
Valve No.	COM	(Empty)	(Empty)	(Empty)	9b	8b	7b	(Empty)	5b	4b	(Empty)	(Empty)	(Empty)

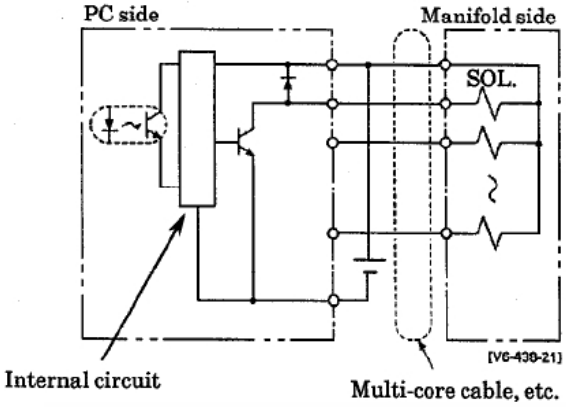
6) Connection to PLC

The common wiring has been internally done on the manifold side.

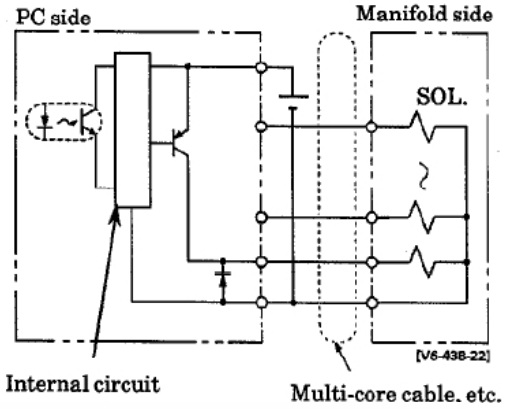
Since the electromagnetic valve has no polarity, it can be connected to either the NPN output or PNP output of the DC output unit of the PLC.

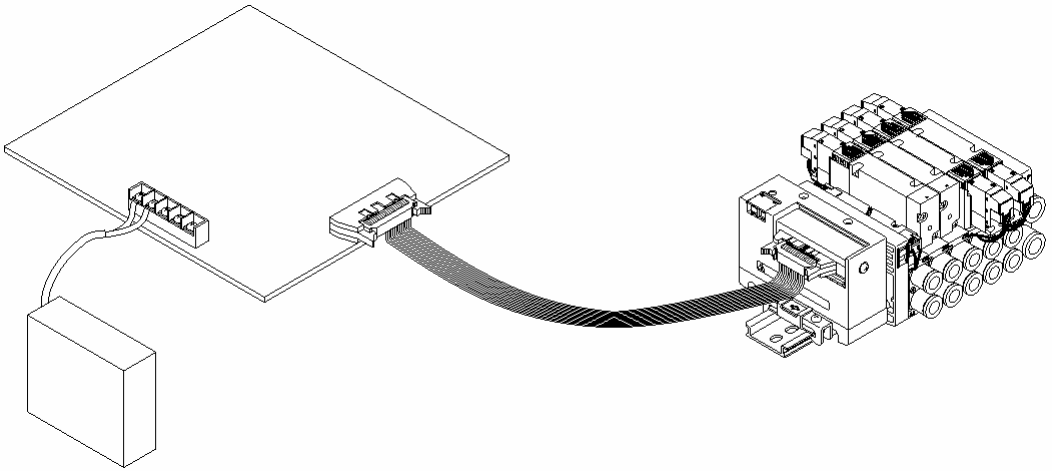
Wire each unit in the following manner.

● DC output unit (NPN output)



●DC output unit (PNP output)





7) Cable production

To produce a connecting cable, we recommend the following equipment for the valve side. Make a correct selection and connection of the cable according to the catalog data sheet. The equipment shown here all complies with the MIL standard (MIL-C-83503) ; thus, there are many others that can be also used for connection, but their locking mechanism may not be suitable.

If so, secure the lock lever with a hand.

- Socket XG4M-2030 (OMRON Corporation)
  Strain relief XG4T-2004
- Loose wire press-connector XGM5-2032 (OMRON Corporation)
- Loose wire press-connector XGM5-2035 (OMRON Corporation)
  (20-pin connector for T50/T51)

8) Cable

The system uses flat cables or slender multi-conductor cables.

As these cables have fine core wires, it should be checked that they have enough mechanical strength and electric capacity.

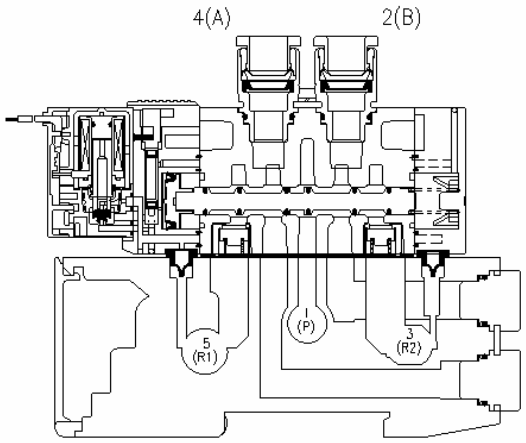
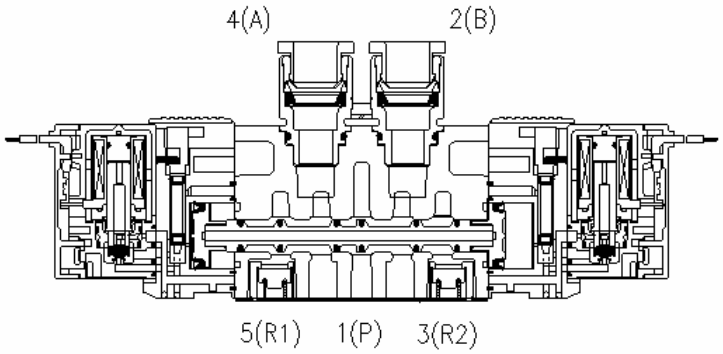
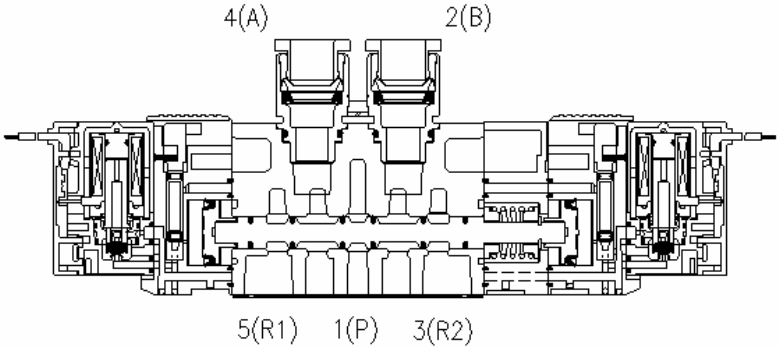
- Make sure to make a rounded corner (R) when bending the flat cable.
- The cable has large electric resistance (AWG28, approx. 0.22Ω/m).
  Pay special attention to voltage drop along the cable.
  If 16 solenoid valves are energized, voltage drop of approx. 0.1 V/m arises in the case of 24 V DC.

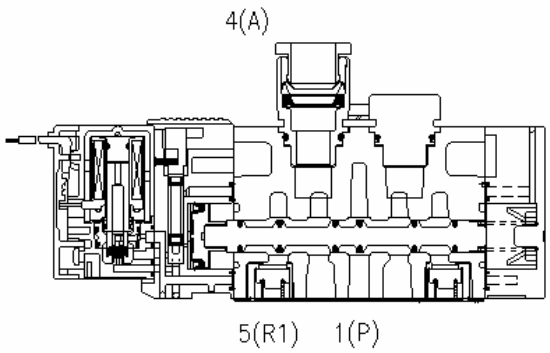
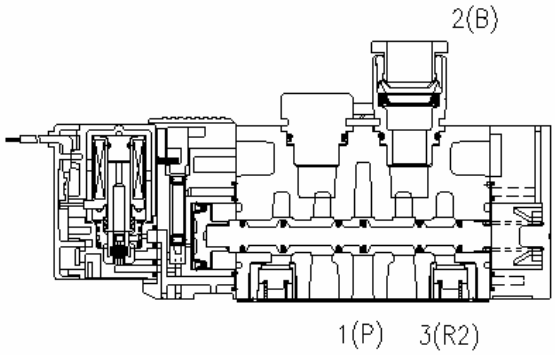
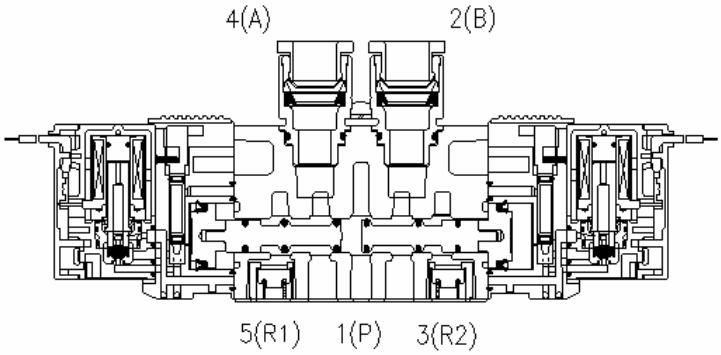
4 INSTALLATION

5. PROPER OPERATION

5.1 Description of operation

1) Valve operation

	Operation diagram (4GD2 series as an example)	Description of operation
N4G**10 Single		De-energized. (As shown in the diagram) 1(P) → 2(B) 4(A) → 5(R1) Energized 1(P) → 4(A) 2(B) → 3(R2)
N4G**20 Double		SOL a is energized 1(P)→4(A) 2(B)→3(R2) SOL b is energized. (As shown in the diagram) 1(P)→2(B) 4(A)→5(R1) The change-over position is retained even after the power is cut off.
N4G**30 N4G**40 N4G**50 3-position		4G**30 De-energized 1(P), 4(A), 2(B), 5(R1), 3(R2) close 4G**40 De-energized 1(P) close 4(A), 2(B) → 5(R1), 3(R2) 4G**50 De-energized 1(P) → 4(A), 2(B) 5(R1), 3(R2) close

	Operation diagram (4GD2 series as an example)	Description of operation
N3GD*10 Normally closed		De-energized. (As shown in the diagram) 4(A) → 5(R1) Energized 1(P) → 4(A)
N3GD*110 Normally opened		De-energized. (As shown in the diagram) 1(P) → 2(B) Energized 2(B) → 3(R2)
N3G**660 Two 3-port valve integrated type		De-energized. 4(A) → 5(R1) (As shown in the diagram) 2(B) → 3(R2) Energized 1(P) → 4(A) 2(B) → 3(R2) (As shown in the diagram)

2) Manifold operation

The main and pilot exhaust gases are collected in the manifold base and discharged from the exhaust port.

3) Prevention of malfunction

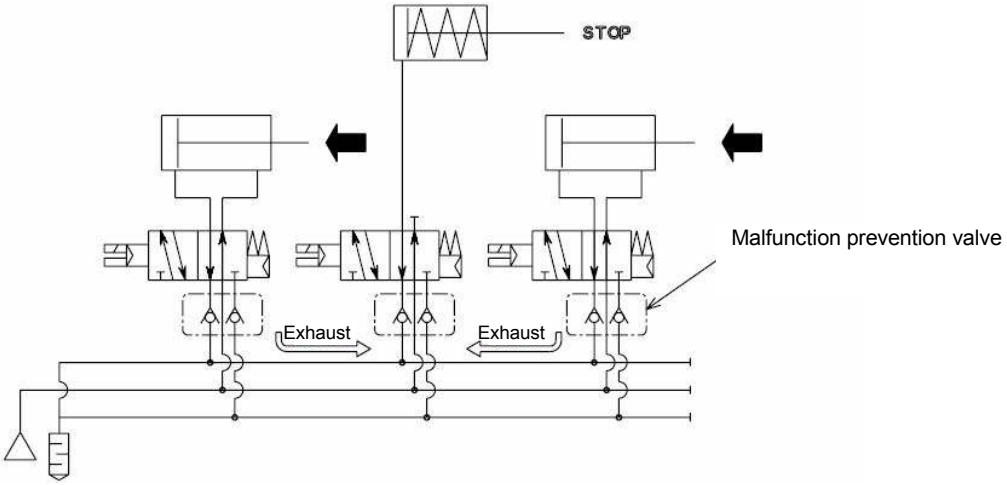
A PR check valve is provided as a standard option. An exhaust malfunction prevention valve is provided when optionally selecting the symbol H.

The PR check valve prevents malfunction of the solenoid valve due to pilot back pressure.

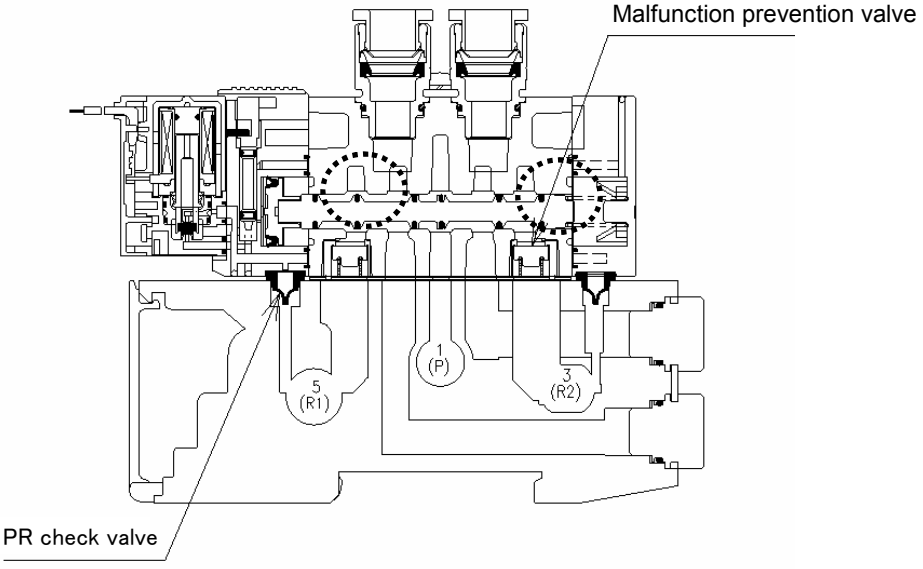
A single and/or a double cylinder connected to an ABR connection valve by the manifold may malfunction due to introduction of back pressure generated when other cylinders are driven. To prevent this malfunction, a gasket with a “malfunction prevention valve” can be selected. It cannot be selected for all-port block valves and PAB connection valves through which no back pressure is introduced.

Note: If a cylinder rod is directly operated with no pressure applied, note that the check valve can operate while the cylinder can not operate.

4G series as an example of air pressure system



Internal structure drawing



5.2 Manual operation

⚠ WARNING:

a) Once the manual operation device has been operated, always return it to its origin (initial position), and then start the operation of the device.

b) Before starting the manual operation, make sure that no one is around the cylinder to be operated.

c) After an operation, be sure to release the lock to turn the manual override OFF.

The lock is released (the manual override turned OFF) if the manual override protection cover is closed.

(1) 4G series is of a kind of pilot type solenoid valve. If you do not supply air to P-port, the main valve cannot be switched even if you operate the manual override.

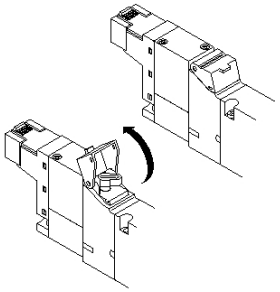
(2) The manual protection cover is provided as standard unit.
Since the product has been shipped with the manual protection cover closed, the manual device is protected and it cannot be seen when the product is delivered. After the product has been delivered, open the protection cover and manually operate the manual device.
Note that the product has a mechanism that the protection cover cannot be closed unless the lock type manual device is released.

(3) The manual override allows a non-lock type (push and release) operation as well as a lock type operation (push and lock). The push and lock operation consists of pressing and then turning the manual override knob. Be sure to press the knob before turning it. An attempt to turn the knob without pressing it may damage the manual override or cause air leakage.

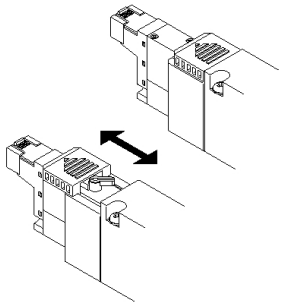
5.2.1 Opening and closing the manual override protection cover.

When opening or closing the manual protection cover, do not apply a force exceeding the specified level. If an excessive external force is applied, this may cause the protection cover to malfunction. (The force is less than 5N.)

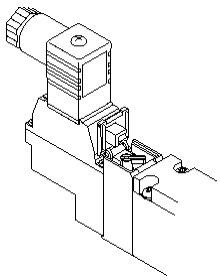
●4G1 Series



●4G2 Series

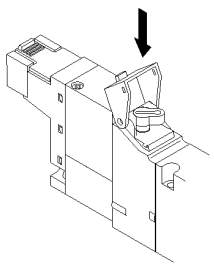


●4G2 Series DIN terminal box type



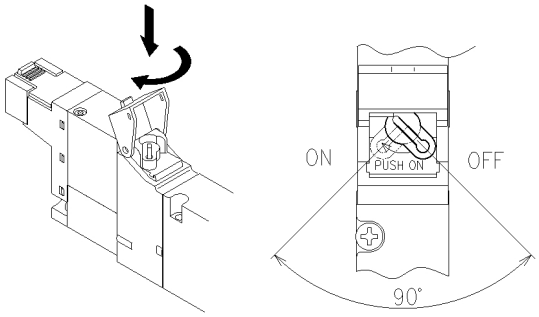
5.2.2 Operating the manual override

(1) Push and non-lock operation
Push the manual device in the direction indicated by an arrow until it is stopped.
When the manual device is released, the manual operation is then cancelled.



(2) Push and lock operation

Push the manual device and turn it 90° in the direction indicated by an arrow. Even though the manual device is released, the manual operation is not cancelled.



5.3 Air quality

⚠ WARNING:

a) Do not supply air other than the compressed air.

b) Always use clean compressed air not including corrosive gas.

⚠ CAUTION:

a) A large amount of drain, oxidized oil, tar, foreign matter, and piping rust are included in the compressed air and this may cause a trouble, such as malfunction or short service life.

Additionally, since the exhaust may cause an environment contamination, it is necessary to improve the air quality (air cleaning).

b) Once the oil less valve is lubricated, the oil less function cannot be maintained.
When lubricating the oil less valve, do not stop lubrication and continue the lubrication.

c) Do not use the spindle oil or machine oil since such oil may cause rubber parts to swell, causing a malfunction.

5.3.1 Lubrication

Generally, the 4GA/B-series does not require any lubrication. If the lubrication is required, use additive-free turbine oil grade 1 (ISO-VG32).If the product is lubricated excessively or if the pressure is significantly low, the response time may be delayed. The response time indicated in the catalog shows the data obtained when the product is not lubricated and the pressure is 0.5 MPa.

5.3.2 Super-dry air

The super-dry air may cause the lubricant to scatter, resulting in short service life. The super-dry air means that the humidity class is 3 or less. (JIS B8392-1/ISO 8573-1)

5.3.3 Drain

(1) If the temperature inside the pneumatic piping or pneumatic device drops, the drain may occur.
(2) If the drain enters the air passage inside the pneumatic device, this may block the passage instantaneously, causing a malfunction.
(3) The drain may generate rust, causing the pneumatic device to malfunction.
(4) The drain may flush the lubricant, causing lubrication failure.

5.3.4 Contaminant

1) Always use compressed air without oxidized oil content, tar, and/or carbon of the air compressor.
   (1) If oxidized oil content, tar, and/or carbon enter the inside of the pneumatic device and they are solidified, the resistance of the sliding part is increased, causing a malfunction.
   (2) If oxidized oil content, tar, and/or carbon are mixed with the lubricant, the sliding part of the pneumatic device is worn out.
2) Always use compressed air without solid foreign matter.
   (1) Solid foreign matter of the compressed air enters the inside of the pneumatic device, causing the sliding part to be worn out or leading to sticking symptom.

5.3.5 Improvement of air quality

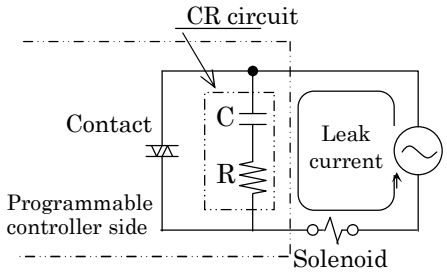
The compressed air includes a large amount of drain (water, oxidized oil, tar, and/or foreign mater). This drain may cause the pneumatic device to malfunction. Therefore, the air must be dehumidified by the after cooler and dryer, foreign matter is removed through the air filter, and tar must also be removed through the air filter for the tar removal to improve the air quality (air cleaning).

5.4 Electric circuit

⚠ CAUTION:

a) To avoid malfunction caused by leak current from other control device, always check the leak current.
- When using the programmable controller, the leak current may affect the motion of the valve. Valve may not be switched even though the solenoid valve is not energized.

b) Control of leak current
- When the solenoid valve is operated by the programmable controller, make sure that the leak current from the output of the programmable controller is the level or less stated in the table below. If the leak current exceeds this level, this may cause a malfunction.



AC100V	2.0 mA or lower
AC12V	1.5 mA or lower
DC24V	1.8 mA or lower

(1) When energizing the double-solenoid type instantaneously, the energizing time must be 0.1 sec. or longer.
However, the cylinder may malfunction under load conditions on the secondary side. Therefore, it is recommended to perform the energizing or manual operation until the cylinder reaches the stroke end position.
(2) When energizing continuously, the temperature of the manifold surface increases.
This is not abnormal, but appropriate ventilation or heat radiation measures must be considered.

About AC100V specifications:
AC100V specifications have a built-in full wave rectified bridge.
In case of using SSR for ON/OFF of the solenoid valve, return failure of solenoid valve may occur depending on its type.
Please be careful when selecting SSR.

6. MAINTENANCE

6.1 Periodic inspection

⚠ WARNING:	Before providing a maintenance service, cut the power and the supply of compressed air and confirm the absence of residual pressure. ・The above is required to ensure safety.

⚠ CAUTION:	Regularly perform the daily and periodic inspections to correctly maintain product performance. ・If the product is not correctly maintained , product performance may deteriorate dramatically, resulting in a shorter service life, fractures of components, and malfunctions.

1) To use the solenoid valve system under optimum conditions, perform a periodic inspection once or twice a year.

2) Check the screws for loosening and the joints in the piping for integrity of the sealing. Regularly remove the drain from the air filters.

(1) Checking the compressed air supply pressure:
Is the supply pressure at the specified level?
Does the pressure gauge indicate the specified pressure when the system is operating?

(2) Checking the air filters:
Is the drain normally discharged?
Is the amount of dirt attached to the bowl and element at a normal level?

(3) Checking joints in the piping for the leakage of compressed air:
Are the pipes normally connected at joints, especially at the movable parts?

(4) Checking the operation of solenoid valves:
Is not there any delay in the operation? Is the exhaust flow normal?

(5) Checking the operation of pneumatic actuators:
Is the operation smooth?
Does the actuator stop normally at the end of the stroke?
Is the coupling with the load normal?

(6) Checking the lubricator:
Is the amount of oil adjusted properly?

(7) Checking the lubrication oil:
Is the supplied lubrication oil of the type specified by the manufacturer?

[SM-P00037-A]

6.2 Disassembly and reassembly

⚠ WARNING: Before providing maintenance service, cut the power and the supply of compressed air and confirm residual pressure is released.

・The above is required to ensure safety.

⚠ WARNING: Regularly perform the daily and periodic inspections to correctly maintain product performance.

・If the product is not correctly maintained , product performance may deteriorate dramatically, resulting in a shorter service life, fractures of components, and malfunctions.

6.2.1 Replacement of solenoid valve

When replacing the solenoid valve, pay special attention so that the gasket, O-ring, PR check valve is not fallen down.

<Removing procedure>

1) Remove the socket (signal wire).
2) Loosen the mounting screw (2 locations).
3) Remove the valve from the valve block.

	Nominal designation of thread	Recommended tightening torque [N·m]
4G1	M1.7	0.18～0.22
4G2	M2.5	0.25～0.33

<Mounting procedure>

For mounting valves, reverse the removing procedure. Refer to the chart at right, for the recommended tightening torque of the mounting screw.

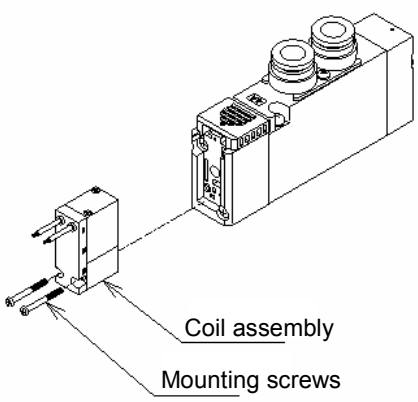
6.2.2 How to replace coil

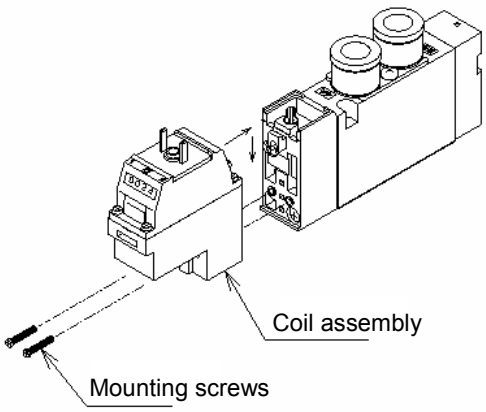
Replace the coil by removing the set screw shown below. Loosening the other screws could cause operation faults. When installing, check that the gasket is installed on the coil side, and note tightening torque. Improper installation could result in air leaks or operation faults. If not mounted correctly, this may cause air leak or malfunction.

The coil assemblies can not be replaced as DIN terminal box types are not compatible with others.

Recommended tightening torque 0.14 to 0.18[N·m]

●Grommet lead wire, E/EJ-connector coil assembly ●DIN terminal box coil assembly





6.2.3 Replacement of cartridge joint

Before changing the push-in joint size, check the proper work steps.

If the cartridge joint is not mounted correctly or if the mounting screw is tightened insufficiently, this may cause air leak.

1) Direct piping (D) type

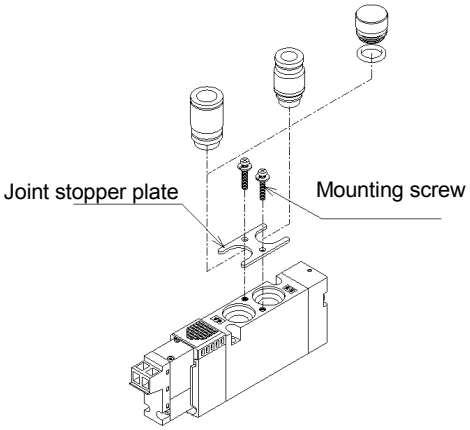
(1) Remove the mounting screws.

(2) Pull out the stopper plate and joint at the same time.

(3) Adjust the groove on the joint for replacement to the stopper plate, and assemble them temporarily.

(4) Mount the stopper plate and joint at the same time, and then tighten the mounting screws firmly.

Pull the joint to check the mounting status.



	Size	Tightening torque (N·m)
4G1	M1.7	0.18～0.22
4G2	M2.5	0.25～0.30

2) Base piping (E) type

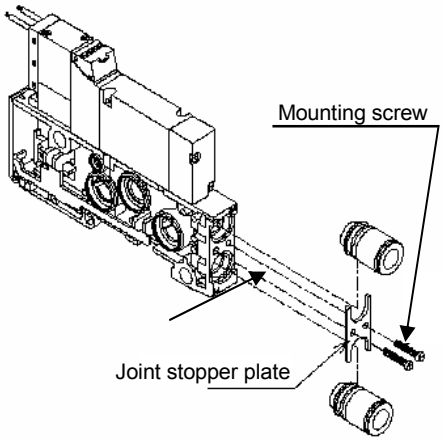
(1) Remove the mounting screws.

(2) Pull out the stopper plate and joint at the same time.

(3) Adjust the groove on the joint for replacement to the stopper plate, and assemble them temporarily.

(4) Mount the stopper plate and joint at the same time, and then tighten the mounting screws firmly.

Pull the joint to check the mounting status.



	Size	Tightening torque (N·m)
4G1	M1.7	0.18～0.22
4G2	M2.5	0.25～0.30

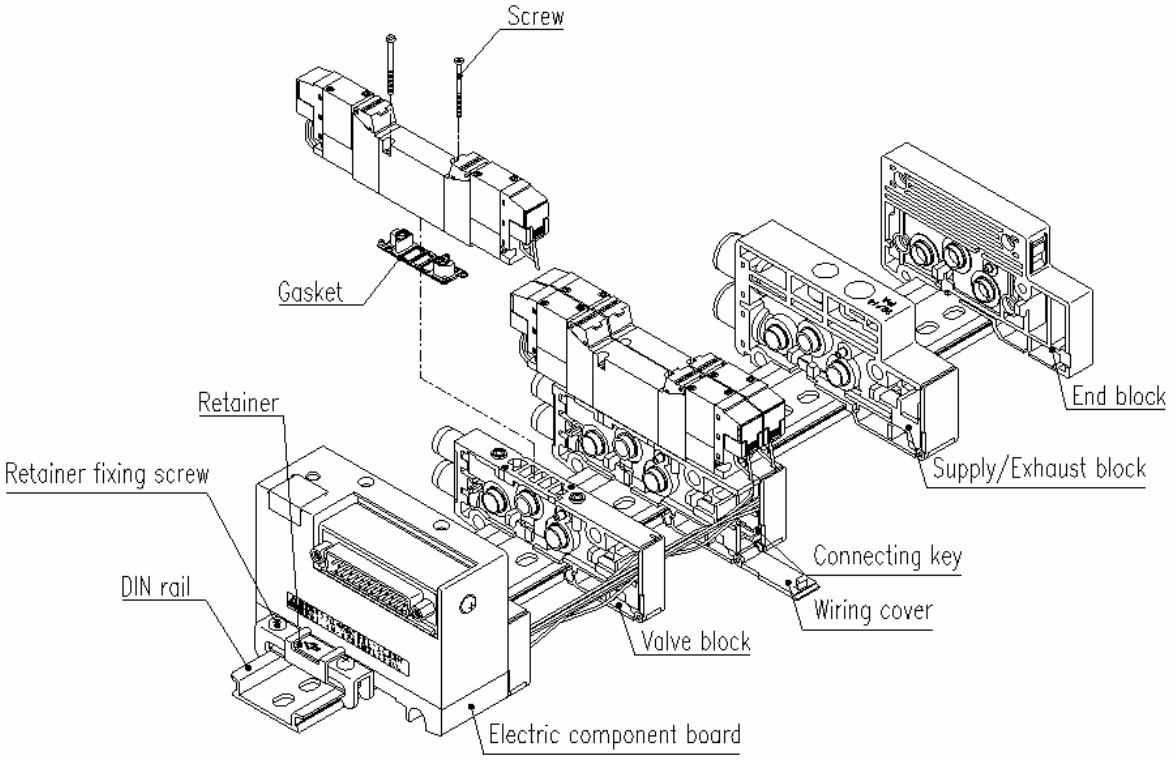
6.3 Additional installation of a valve unit to a reduced wiring type manifold

⚠ WARNING:

When disassembling or assembling the manifold, perform it after reading the Instruction Manual carefully and with full understanding of its contents.

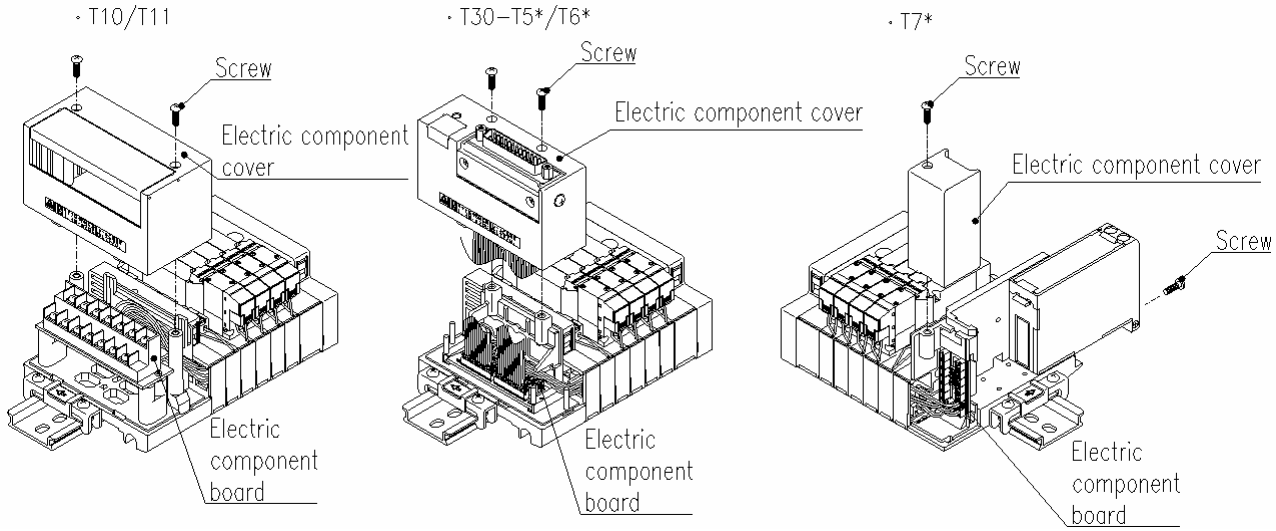
- You are required to understand the structure of solenoid valve and its operation principle to secure the safety.
- A level of 2nd Class or more of Pneumatics Technology Certification is required.

6.3.1 Block manifold disassembly drawing



Example of disassembly: MNGB1 for specifications of D-sub connector right side wiring

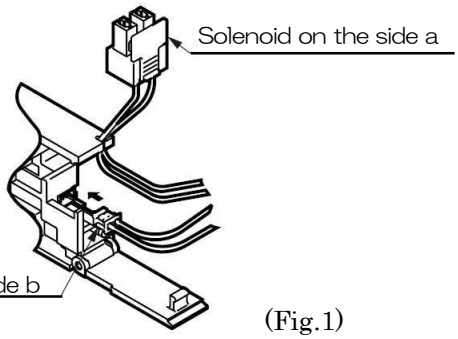
6.3.2 Access to electric component board



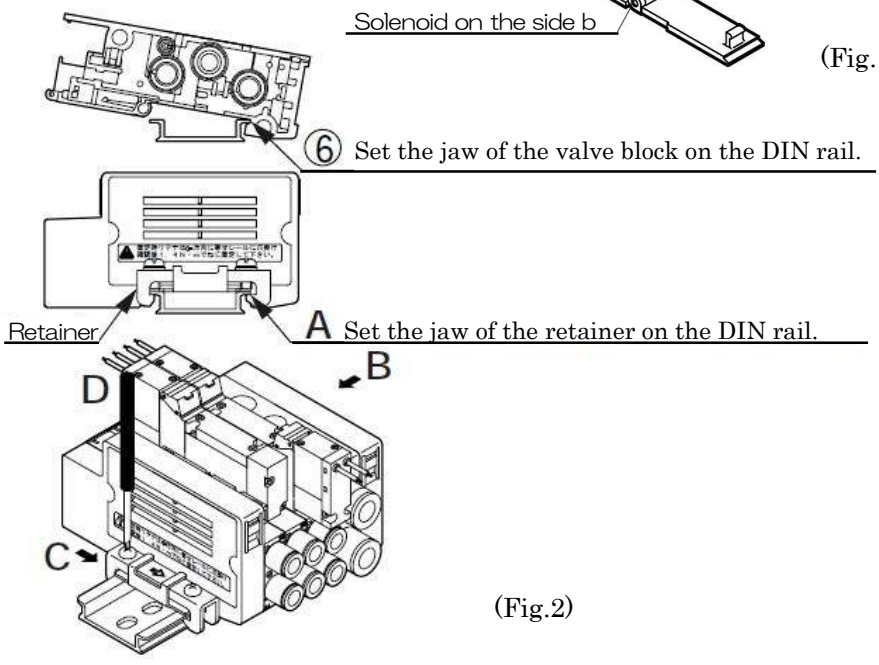
6.3.3 Installation of an Additional Valve Block

1) Loosen the DIN rail set screw of the retainer(See assembly drawing).
2) Open the wiring cover.
3) Pull the connecting key of the place for installation of an aditional valve block until a click is heard, and then disconnect blocks.
4) Remove the cover of the electric component block to expose the electric component board.(Refer to the accsess to the electric component board.)
5) Connect [Note 2] the signal wire (socket assembly) [Note 1] to the electric component board, and install the signal wire to the valve block. (Fig.1)
   Note 1 Refer to 8.5(4) Selection of Socket Assembly Model for Additional Installation.]
   Note 2 Refer to 6.3.4 Connection to Electric Component Board.]
6) Install the additional valve block on the DIN rail.
7) Press the retainer against the block to eliminate the gap between blocks, and push the key for connection.
8) While preventing the pinching of signal wire, close the wiring cover, and secure the cover of the electric component block.
   Tightening torque: 0.35 to 0.5 N·m
9) A Set the jaw of the retainer on the DIN rail.
   B While holding down the retainer to eliminate the gap between blocks.
   C Press the retainer toward the direction of arrow.
   D Tighten the DIN rail set screw. (Fig.2)

※ Up to two additional valve blocks can be installed at the position furthest from the electric component block.



(Fig.1)

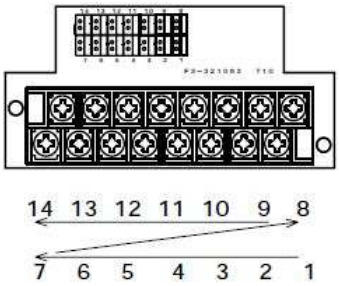


(Fig.2)

6.3.4 Connection procedure of electric circuit board

Connector and valve's compatibility on electric circuit board may differ depending on reduced wiring specifications (T10, T11, T30, T50, T51, T52, T53, T6*, T7*). When wiring the connector, always confirm the connector No. printed on the PCB.

The connector No. indicates a pin number of each connector.

<table>
<tr><th></th><th>Electric circuit board assembly
Wire to order of arrow</th><th>Compatibility with valves</th></tr>
<tr><td>T10</td><td> 
</td><td>1) When single SOL only (Max. MF station number: 14)
<table>
<tr><td>Connector</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td></tr>
<tr><td>Valve No.</td><td>14a</td><td>13a</td><td>12a</td><td>11a</td><td>10a</td><td>9a</td><td>8a</td></tr>
<tr><td>Connector</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td></tr>
<tr><td>Valve No.</td><td>7a</td><td>6a</td><td>5a</td><td>4a</td><td>3a</td><td>2a</td><td>1a</td></tr>
</table>
2) When double SOL only (Max. MF station number: 7)
<table>
<tr><td>Connector</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td></tr>
<tr><td>Valve No.</td><td>7b</td><td>7a</td><td>6b</td><td>6a</td><td>5b</td><td>5a</td><td>4b</td></tr>
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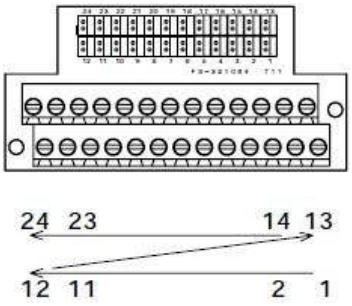
<tr><td>T11</td><td> 
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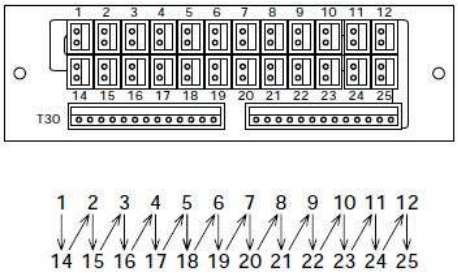
<tr><td>T30</td><td> 
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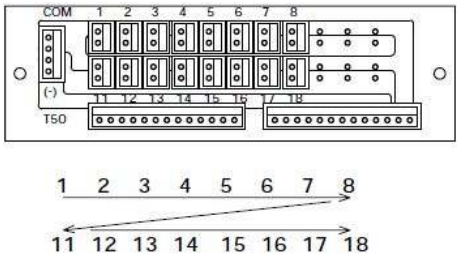
T6*</td><td> 
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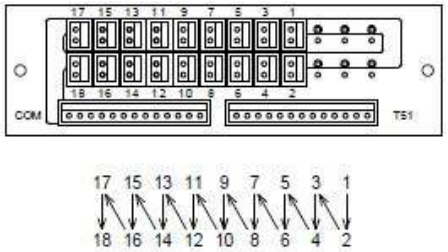
<tr><td>T51</td><td> 
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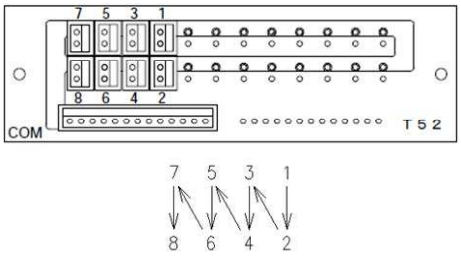
<tr><td>T52</td><td> 
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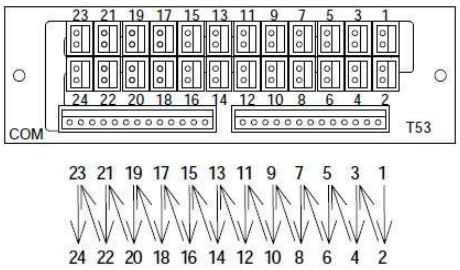
<tr><td>T53</td><td> 
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</table></td></tr>
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7. TROUBLE SHOOTING

TROUBLE SHOOTING

Motion troubles	Suspected cause	Remedies
Does not actuate	No electric signals	Turn on the power
	Damage to signal wiring system	Repair the control circuit
	Excessive fluctuating range of current or voltage	Reaffirm the power capacity. (within ±10% of voltage fluctuation)
	The circuit is not wired correctly	Wire the circuit correctly
	All pilot exhaust port is closed	Rectify the piping system
Malfunctions	Excessive leaking current	Correct control circuit and / or set a bleed circuit
	Chattering	Inspect switching system and / or tighten each loosen terminal screw
	Voltage deviates than specified on the name plate	Rectify the voltage to meet the specification
	Damaged or short circuited coil	Replace the coil
	Erroneous shut off pressure source	Turn on the power source
	Insufficient pressure	Reset the pressure reducer valve or install a pressure raising valve
	Insufficient flow of fluid	Rectify the size of pipe or install a surge tank
	Pressure supplied through exhaust port	Change the piping to an external pilot system
	Erroneous piping, erroneous omitting some piping	Rectify the piping system
	Speed control valve completely closed by error	Reset the needle valve
	A port B port is directly released to an open atmosphere.	Install pipe joints to A and B ports with diameter equal to or smaller than that of to P port joint
	Valve is frozen	Add remedies of avoiding freezing (Heating system or dehumidifying system etc.)
	Delayed return of a plunger (Excessive oil, existence of tar)	Check the quality of the lubricant (Turbine oil type1, ISO VG 32 or equivalent) Rectify the quantity of lubricant drip Install a tar removing filter
	Clogged-up exhausting port with dust	Install a cover or silencer and clean it regularly
High actuating pressure is required	Bulged or decomposed packings	Check the quality of the lubricant (Turbine oil type1, ISO VG 32 or equivalent) Relocate the valves away from splashing area of cutting coolant Keep organic chemicals away from valves.
	Release of A and / or B port to an open atmosphere directly	Check the piping. Apply more grease.
	Foreign particles cut into packing lips	Remove the foreign particle away from the packing.

8. PRODUCT SPECIFICATIONS AND HOW TO CODE MODEL NUMBERS

8.1 Product specifications

1) Common specifications

Item \ Model number		MN4G1·MN4G2
Working fluid		Compressed air
Operation method		Pilot operated type
Valve structure		Soft spool valve
Min. working pressure MPa		0.2
Max. working pressure MPa		0.7
Proof pressure MPa		1.05
Ambient temperature ℃		-5～55 (No freezing)
Fluid temperature ℃		5～55
Manual override		Locked / Non-locked common type
Pilot exhaust method	Internal pilot	Main valve / pilot operated valve common exhaust
Lubrication [Note 1]		Not required
Protection structure [Note 2]		Dust-proof/Jet-proof (equivalent to IP65 enclosure)
Vibration/shock m/s^2		50 or less / 300 or less
Working atmosphere		Must not used in any corrosive gas environment

Note 1 : In case of lubrication, please use turbine oil 1st grade ISO VG32.
Excess lubrication or intermittent lubrication may cause unsteady operation.

Note 2 :The protective structure is dust-proof, but not drip-proof. Check that water drops or oil, etc., do not come into contact. IP65 (jet-proof type) is used for DIN terminal box specifications. It is precondition that the outer diameter of applicable specified cord and tightening torque shall be used to fix it in place. As the structure is not durable to continuous pouring of water, protect it with a cover box.

2) Electric specifications

Item \ Model No.		MN4G1·MN4G2
Rated voltage V	DC	12、24
	AC	100 (50/60 Hz)
Variation range of rated voltage		±10%
Holding current A	DC12V	0.046 (0.050)
	DC24V	0.023 (0.025)
	AC100V	0.010 (0.012)
Power consumption W	DC12V	0.55 (0.6)
	DC24V	0.55 (0.6)
Apparent power VA	AC100V	1.0 (1.2)
Heat-resistance class		B
Temperature rise °C		50
Surge absorber Note 4		Option
Indicator		Standard

Note 3: The values in ( ) include the light.

Note 4: The DIN terminal box type has a built-in lamp surge killer as a standard option.
The values within the parentheses are applicable to such type.

3) Response time

Item			4G1		4G2	
			ON	OFF	ON	OFF
Response time [ms]	Two 3 -port valves built-in		12	15	15	30
	2-position	Single	15	25	20	30
		Double	15	—	20	—
	3-position	ABR port connection	20	30	25	35

Values include the light surge suppressor. Response time is the value at an air supply of 0.5 MPa, 20℃, and oil-free.
Changes based on pressure and quality of oil.

4) Flow characteristics

Model no.	Position type		1(P)→4(A)/2(B)		4(A)/2(B)→5(R1)/3(R2)	
			C[dm^3/(s·bar)]	b	C[dm^3/(s·bar)]	b
MN3GD1	Two 3 -port valves built-in		0.87	0.37	0.68	0.22
	2-position		0.98	0.33	0.71	0.27
MN3GD2	Two 3 -port valves built-in		1.7	0.37	1.6	0.21
	2-position		2.2	0.21	1.7	0.10
MN4GD1	2-position		0.98	0.33	0.71	0.27
	3-position	All ports blocked	0.92	0.34	0.95	0.20
		ABR port connection	0.92	0.29	0.69	0.22
		PAB port connection	1.1	0.35	1.0	0.26
MN4GD2	2-position		2.2	0.21	1.7	0.10
	3-position	All ports blocked	2.0	0.25	2.2	0.15
		ABR port connection	2.0	0.27	1.7	0.12
		PAB port connection	2.3	0.31	2.3	0.23
MN3GE1	Two 3 -port valves built-in		0.86	0.35	0.66	0.25
MN3GE2	Two 3 -port valves built-in		1.7	0.42	1.6	0.19
MN4GE1	2-position		1.0	0.30	0.71	0.26
	3-position	All ports blocked	0.96	0.32	1.0	0.23
		ABR port connection	0.96	0.29	0.71	0.30
		PAB port connection	1.1	0.31	1.0	0.22
MN4GE2	2-position		2.4	0.35	1.7	0.19
	3-position	All ports blocked	2.2	0.38	2.2	0.24
		ABR port connection	2.2	0.38	1.7	0.20
		PAB port connection	2.3	0.29	2.2	0.24

Effective sectional area S and sonic conductance C are converted as S≒5.0 x C.

Values for the built-in check valve apply for the 2-position, two 3 port valve integrated type and ABR connection.

5) Weight

●Valve [g]

			3GA1	3GA2	4GA1	4GA2	4GB1	4GB2
2-position	single	grommet lead wire	43	91	43	96	37	74
		E-connector	45	93	45	98	39	76
		EJ-connector	61	109	61	114	55	92
		DIN terminal box	—	113	—	118	—	96
	double	grommet lead wire	—	—	59	111	53	90
		E-connector	—	—	63	115	57	94
		EJ-connector	—	—	79	147	73	126
		DIN terminal box	—	—	—	155	—	134
3-position		grommet lead wire	—	—	61	123	53	99
		E-connector	—	—	65	127	57	101
		EJ-connector	—	—	81	159	89	133
		DIN terminal box	—	—	—	167	—	121

・E-connector is E2. EJ-connector is E21J. Values Includes the socket assembly.
・The model with two 3-port valves integrated is equivalent to 2-position, double.
・The wire-saving type (A2N) is equivalent to an E-type connector.

●Block

MN4G1

Block	Specification	Model	Weight (g)
Valve block with valve	Direct ported Individual wiring	N3GD110-C6-3	72
		N3GD1110-C6-3	72
		N4GD110-C6-3	72
		N4GD120-C6-3	88
		N4GD130-C6-3	90
		N3GD1660-C6-3	88
	Base ported Individual wiring	N4GE110-C6-3	70
		N4GE120-C6-3	85
		N4GE130-C6-3	86
		N3GE1660-C6-3	85
	Direct ported Reduced wiring	N3GD110-C6-A2N-3	74
		N3GD1110-C6-A2N-3	74
		N4GD110-C6-A2N-3	74
		N4GD120-C6-A2N-3	92
		N4GD130-C6-A2N-3	94
		N3GD1660-C6-A2N-3	92
	Base ported Reduced wiring	N4GE110-C6-A2N-3	72
		N4GE120-C6-A2N-3	89
		N4GE130-C6-A2N-3	90
		N3GE1660-C6-A2N-3	89
Valve block with masking plate		N4GA1-MP※	34
		N4GB1-MP※-C6	37
Supply/exhaust block		N4G1-Q-8	63
End block		N4G1-ER/EL	68
		N4G1-EXR/EXL	57
Partition block		N4G1-S	45
Wiring block		N4G1-T10/T10R	229
		N4G1-T30/T30R	163
		N4G1-T5※/T5※R	165
		N4G1-T6※	293
		N4G1-T7※	185
MIX block		N4G-MIX	49

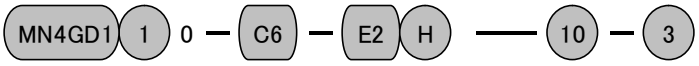
MN4G2

Block	Specification	Model	Weight (g)
Valve block with valve	Direct ported Individual wiring	N3GD210-C8-3	147
		N3GD2110-C8-3	147
		N4GD210-C8-3	147
		N4GD220-C8-3	163
		N4GD230-C8-3	175
		N3GD2660-C8-3	163
	Base ported Individual wiring	N4GE210-C8-3	137
		N4GE220-C8-3	151
		N4GE230-C8-3	162
		N3GE2660-C8-3	151
	Direct ported Reduced wiring	N3GD210-C8-A2N-3	149
		N3GD2110-C8-A2N-3	149
		N4GD210-C8-A2N-3	149
		N4GD220-C8-A2N-3	166
		N4GD230-C8-A2N-3	178
		N3GD2660-C8-A2N-3	168
	Base ported Reduced wiring	N4GE210-C8-A2N-3	139
		N4GE220-C8-A2N-3	155
		N4GE230-C8-A2N-3	166
		N3GE2660-C8-A2N-3	155
Valve block with masking plate		N4GA2-MP*	66
		N4GB2-MP*-C6	76
Supply/exhaust block		N4G2-Q-10	99
End block		N4G2-ER/EL	83
		N4G2-EXR/EXL	84
Partition block		N4G2-S	60
Wiring block		N4G2-T10/T10R	244
		N4G2-T30/T30R	178
		N4G2-T5*/T5*R	180
		N4G2-T6*	308
		N4G2-T7*	200
MIX block		N4G-MIX	49

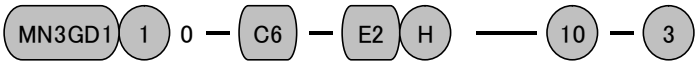
8.2 How to code model numbers

Individual wiring manifold; body porting

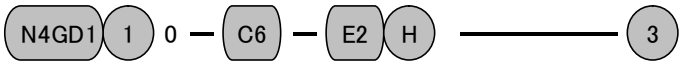
Manifold model no.



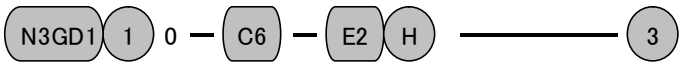
3 port manifold model no.



Discrete valve block with solenoid valve



Discrete valve block with 3 port solenoid valve



Discrete valve for base installation

Discrete 3 port valve for base installation

(A) (B) (C) (D) (E) (F) (G)

Symbol	Descriptions		(A) Model No. MN3GD1	MN3GD2	MN4GD1	MN4GD2	N3GD1・3GD1	N3GD2・3GD2	N4GD1・4GD1	N4GD2・4GD2
(B) Operator type										
1	2-position single				●	●			●	●
2	2-position double				●	●			●	●
3	3-position all port blocked				●	●			●	●
4	3-position ABR connection				●	●			●	●
5	3-position PAB connection				●	●			●	●
1	2-position single solenoid N.C.		●	●			●	●		
11	2-position single solenoid N.O.		●	●			●	●		
66	Two 3 port valve integrated type	A side valve: normally closed	●	●			●	●		
		B side valve: normally closed								
8	Mix manifold		●	●	●	●				

(C) Port size(A/B port)								
C4	φ4 push-in joint	●	●	●	●	●	●	●	●
C6	φ6 push-in joint	●	●	●	●	●	●	●	●
C8	φ8 push-in joint		●		●		●		●
CX	push-in joint mix	●	●	●	●				
M5	M5	●		●		●		●	
06	Rc1/8		●		●		●		●

Discontinue

Symbol	Descriptions	(A) Model No.							
		MN3GD1	MN3GD2	MN4GD1	MN4GD2	N3GD1・3GD1	N3GD2・3GD2	N4GD1・4GD1	N4GD2・4GD2
(D) Electric wire connection									
Blank	Grommet lead wire(300mm)	●	●	●	●	●	●	●	●
B	DIN terminal box		●		●		●		●
E-connector (top/side common)									
E0	Lead wire(300mm)	●	●	●	●	●	●	●	●
E00	Lead wire(500mm)	●	●	●	●	●	●	●	●
E01	Lead wire(1000mm)	●	●	●	●	●	●	●	●
E02	Lead wire(2000mm)	●	●	●	●	●	●	●	●
E03	Lead wire(3000mm)	●	●	●	●	●	●	●	●
E2	Lead wire(300mm) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E20	Lead wire(500mm) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E21	Lead wire(1000mm) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E22	Lead wire(2000mm) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E23	Lead wire(3000mm) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E0N	Non-lead wire(without socket)	●	●	●	●	●	●	●	●
E2N	Non-lead wire(without socket) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E3	Non-lead wire(socket and terminal attached) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E1	Non-lead wire(socket and terminal attached)	●	●	●	●	●	●	●	●
EJ-connector(socket with cover (top/side common))									
E01J	Lead wire(1000mm)	●	●	●	●	●	●	●	●
E02J	Lead wire(2000mm)	●	●	●	●	●	●	●	●
E03J	Lead wire(3000mm)	●	●	●	●	●	●	●	●
E21J	Lead wire(1000mm) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E22J	Lead wire(2000mm) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E23J	Lead wire(3000mm) surge absorber and lamp provided.	●	●	●	●	●	●	●	●

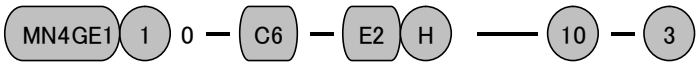
(E) Option									
Blank	None	●	●	●	●	●	●	●	●
H	With check valve	●	●	●	●	●	●	●	●
A	Ozone and coolant proof	●	●	●	●	●	●	●	●
F	A/B port filter integrated	●	●	●	●	●	●	●	●
Z1	Supply spacer	●	●	●	●				

(F) Station number									
2	2stations	●	●	●	●				
⟆	⟆								
24	24stations (In case of MN3GD2 or MN4GD2, 20 stations)								

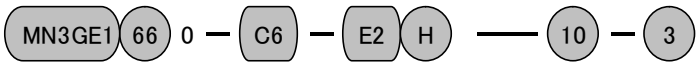
(G) Voltage									
1	100 VAC	●	●	●	●	●	●	●	●
3	24 VDC	●	●	●	●	●	●	●	●
4	12 VDC	●	●	●	●	●	●	●	●

Individual wiring manifold; sub-base porting

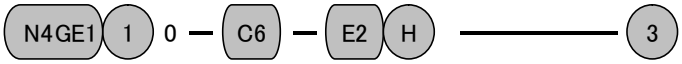
Manifold model no.



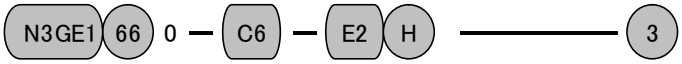
3 port manifold model no.



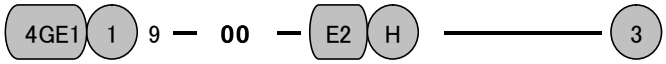
Discrete valve block with solenoid valve



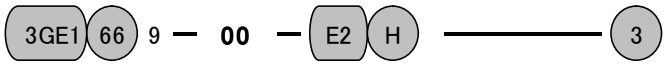
Discrete valve block with 3 port solenoid valve



Discrete valve for base installation



Discrete 3 port valve for base installation



(A) (B) (C) (D) (E) (F) (G)

Symbol	Descriptions		(A) Model No. MN3GE1	MN3GE2	MN4GE1	MN4GE2	N3GE1・3GE1	N3GE2・3GE2	N4GE1・4GE1	N4GE2・4GE2
(B) Operator type										
1	2-position single				●	●			●	●
2	2-position double				●	●			●	●
3	3-position all port blocked				●	●			●	●
4	3-position ABR connection				●	●			●	●
5	3-position PAB connection				●	●			●	●
66	Two 3 port valve integrated type	A side valve: normally closed B side valve: normally closed	●	●			●	●		
8	Mix manifold		●	●	●	●				

(C) Port size(A/B port)									
C4	φ4 push-in joint		●	●	●	●	●	●	●	●
C6	φ6 push-in joint		●	●	●	●	●	●	●	●
C8	φ8 push-in joint			●		●		●		●
CL4	φ4 push-in joint L type(Upward)		●		●		●		●	
CL6	φ6 push-in joint L type(Upward)		●	●	●	●	●	●	●	●
CL8	φ8 push-in joint L type(Upward)			●		●		●		●
CD4	φ4 push-in joint L type(Dow nw ard)		●		●		●		●	
CD6	φ6 push-in joint L type(Dow nw ard)		●	●	●	●	●	●	●	●
CD8	φ8 push-in joint L type(Dow nw ard)			●		●		●		●
CX	push-in joint mix		●	●	●	●				
	A port	B port								
C4NC	φ4 push-in joint	Plug			●	●			●	●
C6NC	φ6 push-in joint	Plug			●	●			●	●
C8NC	φ8 push-in joint	Plug				●				●
C4NO	Plug	φ4 push-in joint			●	●			●	●
C6NO	Plug	φ6 push-in joint			●	●			●	●
C8NO	Plug	φ8 push-in joint				●				●
CL4NC	φ4 push-in joint L type(Upward)	Plug			●				●	
CL6NC	φ6 push-in joint L type(Upward)	Plug			●	●			●	●
CL8NC	φ8 push-in joint L type(Upward)	Plug				●				●
CL4NO	Plug	φ4 push-in joint L type(Upward)			●				●	
CL6NO	Plug	φ6 push-in joint L type(Upward)			●	●			●	●
CL8NO	Plug	φ8 push-in joint L type(Upward)				●				●
CD4NC	φ4 push-in joint L type(Dow nw ard)	Plug			●				●	
CD6NC	φ6 push-in joint L type(Dow nw ard)	Plug			●	●			●	●
CD8NC	φ8 push-in joint L type(Dow nw ard)	Plug				●				●
CD4NO	Plug	φ4 push-in joint L type(Dow nw ard)			●				●	
CD6NO	Plug	φ6 push-in joint L type(Dow nw ard)			●	●			●	●
CD8NO	Plug	φ8 push-in joint L type(Dow nw ard)				●				●

Symbol	Descriptions	(A) Model No.							
		MN3GE1	MN3GE2	MN4GE1	MN4GE2	N3GE1-3GE1	N3GE2-3GE2	N4GE1-4GE1	N4GE2-4GE2
(D) Electric wire connection									
Blank	Grommet lead wire(300mm)	●	●	●	●	●	●	●	●
B	DIN terminal box		●		●		●		●
E-connector (top/side common)									
E0	Lead wire(300mm)	●	●	●	●	●	●	●	●
E00	Lead wire(500mm)	●	●	●	●	●	●	●	●
E01	Lead wire(1000mm)	●	●	●	●	●	●	●	●
E02	Lead wire(2000mm)	●	●	●	●	●	●	●	●
E03	Lead wire(3000mm)	●	●	●	●	●	●	●	●
E2	Lead wire(300mm) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E20	Lead wire(500mm) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E21	Lead wire(1000mm) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E22	Lead wire(2000mm) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E23	Lead wire(3000mm) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E0N	Non-lead wire(without socket)	●	●	●	●	●	●	●	●
E2N	Non-lead wire(without socket) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E3	Non-lead wire(socket and terminal attached) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E1	Non-lead wire(socket and terminal attached)	●	●	●	●	●	●	●	●
EJ-connector(socket with cover (top/side common))									
E01J	Lead wire(1000mm)	●	●	●	●	●	●	●	●
E02J	Lead wire(2000mm)	●	●	●	●	●	●	●	●
E03J	Lead wire(3000mm)	●	●	●	●	●	●	●	●
E21J	Lead wire(1000mm) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E22J	Lead wire(2000mm) surge absorber and lamp provided.	●	●	●	●	●	●	●	●
E23J	Lead wire(3000mm) surge absorber and lamp provided.	●	●	●	●	●	●	●	●

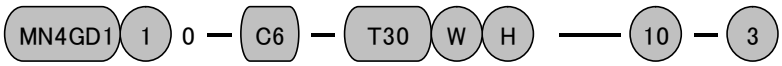
(E) Option									
Blank	None	●	●	●	●	●	●	●	●
H	With check valve	●	●	●	●	●	●	●	●
A	Ozone and coolant proof	●	●	●	●	●	●	●	●
F	A/B port filter integrated	●	●	●	●	●	●	●	●
Z1	Supply spacer	●	●	●	●				

(F) Station number									
2	2stations	●	●	●	●				
∫	∫								
24	24stations (In case of MN3GE2 or MN4GE2, 20 stations)								

(G) Voltage									
1	100 VAC	●	●	●	●	●	●	●	●
3	24 VDC	●	●	●	●	●	●	●	●
4	12 VDC	●	●	●	●	●	●	●	●

Reduced wiring manifold; body porting

Manifold model no.



3 port manifold model no.

Discrete valve block with solenoid valve

Discrete valve block with 3 port solenoid valve

Discrete valve for base installation

Discrete 3 port valve for base installation

Symbol	Descriptions		(A) Model No. MN3GD1	MN3GD2	MN4GD1	MN4GD2	N3GD1・3GD1	N3GD2・3GD2	N4GD1・4GD1	N4GD2・4GD2
(B) Operator type										
1	2-position single				●	●			●	●
2	2-position double				●	●			●	●
3	3-position all port blocked				●	●			●	●
4	3-position ABR connection				●	●			●	●
5	3-position PAB connection				●	●			●	●
1	2-position single solenoid N.C.		●	●			●	●		
11	2-position single solenoid N.O.		●	●			●	●		
66	Two 3 port valve integrated type	A side valve: normally closed	●	●			●	●		
		B side valve: normally closed								
8	Mix manifold		●	●	●	●				

(C) Port size(A/B port)								
C4	φ4 push-in joint	●	●	●	●	●	●	●	●
C6	φ6 push-in joint	●	●	●	●	●	●	●	●
C8	φ8 push-in joint		●		●		●		●
CX	push-in joint mix	●	●	●	●				
M5	M5	●		●		●		●	
06	Rc1/8		●		●		●		●

Discontinue

Symbol	Descriptions		(A) Model No. MN3GD1	MN3GD2	MN4GD1	MN4GD2	N3GD1・3GD1	N3GD2・3GD2	N4GD1・4GD1	N4GD2・4GD2
(D) Reduced wiring (light, surge absorber provided as standard)										
T10	Common gland (M3 screw)	Left	●	●	●	●				
T10R		Right	●	●	●	●				
T11	Common gland (push-in fitting)	Left	●	●	●	●				
T11R		Right	●	●	●	●				
T30	D sub-connector	Left	●	●	●	●				
T30R		Right	●	●	●	●				
T50	20 pin flat cable connector (with power supply terminal)	Left	●	●	●	●				
T50R		Right	●	●	●	●				
T51	20 pin flat cable connector (without power supply terminal)	Left	●	●	●	●				
T51R		Right	●	●	●	●				
T52	10 pin flat cable connector (without power supply terminal)	Left	●	●	●	●				
T52R		Right	●	●	●	●				
T53	26 pin flat cable connector (without power supply terminal)	Left	●	●	●	●				
T53R		Right	●	●	●	●				
A2N	A-connector(downward)						●	●	●	●
(E) Terminal/connector pin array										
Blank	Standard wiring		●	●	●	●				
W	Double wiring		●	●	●	●				
(F) Option										
Blank	None		●	●	●	●	●	●	●	●
H	With check valve		●	●	●	●	●	●	●	●
A	Ozone and coolant proof		●	●	●	●	●	●	●	●
F	A/B port filter integrated		●	●	●	●	●	●	●	●
Z1	Supply spacer		●	●	●	●				
(G) Station number										
2	2stations		●	●	●	●				
∫	∫									
24	24stations									
(H) Voltage										
3	24 VDC		●	●	●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●	●	●

Reduced wiring manifold; body porting; serial transmission

Manifold model no.

3 port manifold model no.

Discrete valve block with solenoid valve

Discrete valve block with 3 port solenoid valve

Discrete valve for base installation

Discrete 3 port valve for base installation

(A) (B) (C) (D) (E) (F) (G) (H)

Symbol	Descriptions		(A) Model No. MN3GD1	MN3GD2	MN4GD1	MN4GD2	N3GD1・3GD1	N3GD2・3GD2	N4GD1・4GD1	N4GD2・4GD2
(B) Operator type										
1	2-position single				●	●			●	●
2	2-position double				●	●			●	●
3	3-position all port blocked				●	●			●	●
4	3-position ABR connection				●	●			●	●
5	3-position PAB connection				●	●			●	●
1	2-position single solenoid N.C.		●	●			●	●		
11	2-position single solenoid N.O.		●	●			●	●		
66	Two 3 port valve integrated type	A side valve: normally closed	●	●			●	●		
		B side valve: normally closed								
8	Mix manifold		●	●	●	●				

(C) Port size(A/B port)								
C4	φ4 push-in joint	●	●	●	●	●	●	●	●
C6	φ6 push-in joint	●	●	●	●	●	●	●	●
C8	φ8 push-in joint		●		●		●		●
CX	push-in joint mix	●	●	●	●				
M5	M5	●		●		●		●	
06	Rc1/8		●		●		●		●

Symbol	Descriptions	(A) Model No. MN3GD1	MN3GD2	MN4GD1	MN4GD2	N3GD1・3GD1	N3GD2・3GD2	N4GD1・4GD1	N4GD2・4GD2
(D)	Serial transmission (light and surge absorber provided as standard)								
T6A0	UNIWIRE SYSTEM 8 points	●	●	●	●				
T6A1	UNIWIRE SYSTEM 16 points	●	●	●	●				
T6C0	OMRON CompoBus/S 8 points	●	●	●	●				
T6C1	OMRON CompoBus/S 16 points	●	●	●	●				
T6E0	SUNX S-LINK 8 points	●	●	●	●				
T6E1	SUNX S-LINK 16 points	●	●	●	●				
T6G1	CC-Link 16 points	●	●	●	●				
T6J0	UNIWIRE H SYSTEM 8 points	●	●	●	●				
T6J1	UNIWIRE H SYSTEM 16 points	●	●	●	●				
T7C0	Thin type OMRON CompoBus/S 8 points	●	●	●	●				
T7C1	Thin type OMRON CompoBus/S 16 points	●	●	●	●				
T7D1	Thin type DeviceNet 16 points	●	●	●	●				
T7E0	Thin type SUNX S-LINK 8 points	●	●	●	●				
T7E1	Thin type SUNX S-LINK 16 points	●	●	●	●				
T7G1	Thin type CC-Link 16 points	●	●	●	●				
T7L1	Thin type SAVE NET 16 POINTS	●	●	●	●				
T7S1	Thin type CompoNet 16 points (NPN)	●	●	●	●				
T7SP1	Thin type CompoNet 16 points (PNP)	●	●	●	●				
A2N	A-connector(downward)					●	●	●	●
(E)	Terminal/connector pin array								
Blank	Standard wiring	●	●	●	●				
W	Double wiring	●	●	●	●				
(F)	Option								
Blank	None	●	●	●	●	●	●	●	●
H	With check valve	●	●	●	●	●	●	●	●
A	Ozone and coolant proof	●	●	●	●	●	●	●	●
F	A/B port filter integrated	●	●	●	●	●	●	●	●
Z1	Supply spacer	●	●	●	●				
(G)	Station number								
2	2stations	●	●	●	●				
⟆	⟆								
16	16stations								
(H)	Voltage								
3	24 VDC	●	●	●	●	●	●	●	●

Reduced wiring manifold; sub-base porting

Manifold model no.

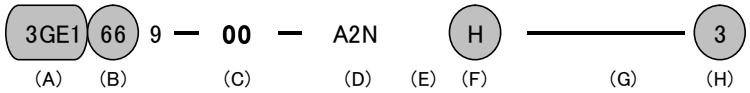
3 port manifold model no.

Discrete valve block with solenoid valve

Discrete valve block with 3 port solenoid valve

Discrete valve for base installation

Discrete 3 port valve for base installation



Symbol	Descriptions		(A) Model No. MN3GE1	MN3GE2	MN4GE1	MN4GE2	N3GE1・3GE1	N3GE2・3GE2	N4GE1・4GE1	N4GE2・4GE2
(B) Operator type										
1	2-position single				●	●			●	●
2	2-position double				●	●			●	●
3	3-position all port blocked				●	●			●	●
4	3-position ABR connection				●	●			●	●
5	3-position PAB connection				●	●			●	●
66	Two 3 port valve integrated type	A side valve: normally closed B side valve: normally closed	●	●			●	●		
8	Mix manifold		●	●	●	●				
(C) Port size(A/B port)										
C4	φ4 push-in joint		●	●	●	●	●	●	●	●
C6	φ6 push-in joint		●	●	●	●	●	●	●	●
C8	φ8 push-in joint			●		●		●		●
CL4	φ4 push-in joint L type(Upward)		●		●		●		●	
CL6	φ6 push-in joint L type(Upward)		●	●	●	●	●	●	●	●
CL8	φ8 push-in joint L type(Upward)			●		●		●		●
CD4	φ4 push-in joint L type(Dow nw ard)		●		●		●		●	
CD6	φ6 push-in joint L type(Dow nw ard)		●	●	●	●	●	●	●	●
CD8	φ8 push-in joint L type(Dow nw ard)			●		●		●		●
CX	push-in joint mix		●	●	●	●				
	A port	B port								
C4NC	φ4 push-in joint	Plug			●	●			●	●
C6NC	φ6 push-in joint	Plug			●	●			●	●
C8NC	φ8 push-in joint	Plug				●				●
C4NO	Plug	φ4 push-in joint			●	●			●	●
C6NO	Plug	φ6 push-in joint			●	●			●	●
C8NO	Plug	φ8 push-in joint				●				●
CL4NC	φ4 push-in joint L type(Upward)	Plug			●				●	
CL6NC	φ6 push-in joint L type(Upward)	Plug			●	●			●	●
CL8NC	φ8 push-in joint L type(Upward)	Plug				●				●
CL4NO	Plug	φ4 push-in joint L type(Upward)			●				●	
CL6NO	Plug	φ6 push-in joint L type(Upward)			●	●			●	●
CL8NO	Plug	φ8 push-in joint L type(Upward)				●				●
CD4NC	φ4 push-in joint L type(Dow nw ard)	Plug			●				●	
CD6NC	φ6 push-in joint L type(Dow nw ard)	Plug			●	●			●	●
CD8NC	φ8 push-in joint L type(Dow nw ard)	Plug				●				●
CD4NO	Plug	φ4 push-in joint L type(Downward)			●				●	
CD6NO	Plug	φ6 push-in joint L type(Downward)			●	●			●	●
CD8NO	Plug	φ8 push-in joint L type(Downward)				●				●

Symbol	Descriptions		(A) Model No. MN3GE1	MN3GE2	MN4GE1	MN4GE2	N3GE1・3GE1	N3GE2・3GE2	N4GE1・4GE1	N4GE2・4GE2
(D) Reduced wiring (light, surge absorber provided as standard)										
T10	Common gland (M3 screw)	Left	●	●	●	●				
T10R		Right	●	●	●	●				
T11	Common gland (push-in fitting)	Left	●	●	●	●				
T11R		Right	●	●	●	●				
T30	D sub-connector	Left	●	●	●	●				
T30R		Right	●	●	●	●				
T50	20 pin flat cable connector (with power supply terminal)	Left	●	●	●	●				
T50R		Right	●	●	●	●				
T51	20 pin flat cable connector (without power supply terminal)	Left	●	●	●	●				
T51R		Right	●	●	●	●				
T52	10 pin flat cable connector (without power supply terminal)	Left	●	●	●	●				
T52R		Right	●	●	●	●				
T53	26 pin flat cable connector (without power supply terminal)	Left	●	●	●	●				
T53R		Right	●	●	●	●				
A2N	A-connector(downward)						●	●	●	●
(E) Terminal/connector pin array										
Blank	Standard wiring		●	●	●	●				
W	Double wiring		●	●	●	●				
(F) Option										
Blank	None		●	●	●	●	●	●	●	●
H	With check valve		●	●	●	●	●	●	●	●
A	Ozone and coolant proof		●	●	●	●	●	●	●	●
F	A/B port filter integrated		●	●	●	●	●	●	●	●
Z1	Supply spacer		●	●	●	●				
(G) Station number										
2	2stations		●	●	●	●				
⟆	⟆									
24	24stations									
(H) Voltage										
3	24 VDC		●	●	●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●	●	●

Reduced wiring manifold; sub-base porting; serial transmission

Manifold model no.

MN4GE1 (1) 0 — C6 — T6A0 (W) (H) —— 10 — 3

3 port manifold model no.

MN3GE1 (66) 0 — C6 — T6A0 (W) (H) —— 10 — 3

Discrete valve block with solenoid valve

N4GE1 (1) 0 — C6 — A2N (H) —— 3

Discrete valve block with 3 port solenoid valve

N3GE1 (66) 0 — C6 — A2N (H) —— 3

Discrete valve for base installation

4GE1 (1) 9 — **00** — A2N (H) —— 3

Discrete 3 port valve for base installation

3GE1 (66) 9 — **00** — A2N (H) —— 3

(A) (B) (C) (D) (E) (F) (G) (H)

Symbol	Descriptions		(A) Model No. MN3GE1	MN3GE2	MN4GE1	MN4GE2	N3GE1・3GE1	N3GE2・3GE2	N4GE1・4GE1	N4GE2・4GE2
(B) Operator type										
1	2-position single				●	●			●	●
2	2-position double				●	●			●	●
3	3-position all port blocked				●	●			●	●
4	3-position ABR connection				●	●			●	●
5	3-position PAB connection				●	●			●	●
66	Two 3 port valve integrated type	A side valve: normally closed B side valve: normally closed	●	●			●	●		
8	Mix manifold		●	●	●	●				
(C) Port size(A/B port)										
C4	φ4 push-in joint		●	●	●	●	●	●	●	●
C6	φ6 push-in joint		●	●	●	●	●	●	●	●
C8	φ8 push-in joint			●		●		●		●
CL4	φ4 push-in joint L type(Upward)		●		●		●		●	
CL6	φ6 push-in joint L type(Upward)		●	●	●	●	●	●	●	●
CL8	φ8 push-in joint L type(Upward)			●		●		●		●
CD4	φ4 push-in joint L type(Downward)		●		●		●		●	
CD6	φ6 push-in joint L type(Downward)		●	●	●	●	●	●	●	●
CD8	φ8 push-in joint L type(Downward)			●		●		●		●
CX	push-in joint mix		●	●	●	●				
	A port	B port								
C4NC	φ4 push-in joint	Plug			●	●			●	●
C6NC	φ6 push-in joint	Plug			●	●			●	●
C8NC	φ8 push-in joint	Plug				●				●
C4NO	Plug	φ4 push-in joint			●	●			●	●
C6NO	Plug	φ6 push-in joint			●	●			●	●
C8NO	Plug	φ8 push-in joint				●				●
CL4NC	φ4 push-in joint L type(Upward)	Plug			●				●	
CL6NC	φ6 push-in joint L type(Upward)	Plug			●	●			●	●
CL8NC	φ8 push-in joint L type(Upward)	Plug				●				●
CL4NO	Plug	φ4 push-in joint L type(Upward)			●				●	
CL6NO	Plug	φ6 push-in joint L type(Upward)			●	●			●	●
CL8NO	Plug	φ8 push-in joint L type(Upward)				●				●
CD4NC	φ4 push-in joint L type(Downward)	Plug			●				●	
CD6NC	φ6 push-in joint L type(Downward)	Plug			●	●			●	●
CD8NC	φ8 push-in joint L type(Downward)	Plug				●				●
CD4NO	Plug	φ4 push-in joint L type(Downward)			●				●	
CD6NO	Plug	φ6 push-in joint L type(Downward)			●	●			●	●
CD8NO	Plug	φ8 push-in joint L type(Downward)				●				●

Discontinue

Symbol	Descriptions	(A) Model No. MN3GE1	MN3GE2	MN4GE1	MN4GE2	N3GE1・3GE1	N3GE2・3GE2	N4GE1・4GE1	N4GE2・4GE2
(D) Serial transmission (light and surge absorber provided as standard)									
T6A0	UNIWIRE SYSTEM 8 points	●	●	●	●				
T6A1	UNIWIRE SYSTEM 16 points	●	●	●	●				
T6C0	OMRON CompoBus/S 8 points	●	●	●	●				
T6C1	OMRON CompoBus/S 16 points	●	●	●	●				
T6E0	SUNX S-LINK 8 points	●	●	●	●				
T6E1	SUNX S-LINK 16 points	●	●	●	●				
T6G1	CC-Link 16 points	●	●	●	●				
T6J0	UNIWIRE H SYSTEM 8 points	●	●	●	●				
T6J1	UNIWIRE H SYSTEM 16 points	●	●	●	●				
T7C0	Thin type OMRON CompoBus/S 8 points	●	●	●	●				
T7C1	Thin type OMRON CompoBus/S 16 points	●	●	●	●				
T7D1	Thin type DeviceNet 16 points	●	●	●	●				
T7E0	Thin type SUNX S-LINK 8 points	●	●	●	●				
T7E1	Thin type SUNX S-LINK 16 points	●	●	●	●				
T7G1	Thin type CC-Link 16 points	●	●	●	●				
T7L1	Thin type SAVE NET 16 POINTS	●	●	●	●				
T7S1	Thin type CompoNet 16 points (NPN)	●	●	●	●				
T7SP1	Thin type CompoNet 16 points (PNP)	●	●	●	●				
A2N	A-connector(downward)					●	●	●	●
(E) Terminal/connector pin array									
Blank	Standard wiring	●	●	●	●				
W	Double wiring	●	●	●	●				
(F) Option									
Blank	None	●	●	●	●	●	●	●	●
H	With check valve	●	●	●	●	●	●	●	●
A	Ozone and coolant proof	●	●	●	●	●	●	●	●
F	A/B port filter integrated	●	●	●	●	●	●	●	●
Z1	Supply spacer	●	●	●	●				
(G) Station number									
2	2stations	●	●	●	●				
∫	∫								
16	16stations								
(H) Voltage									
3	24 VDC	●	●	●	●	●	●	●	●

8.3 Option

1） Explanation of option

・With check valve： Symbol “H” Refer to 5.1 section.

To prevent malfunction due to introduction of back pressure, a gasket with a malfunction prevention valve can be selected.

・Ozone and coolant proof ： Symbol “A”

Set it if the coolant flows in the valve.

The rubber material of the major section of the solenoid valve is changed to the fluorine-containing rubber.

・With built-in A/B port filter ： Symbol “F”

The filter prevents the cutting chips and pieces of tape from entering the valve.

・With supply spacer ： Symbol “Z1” Refer to section 8.5

This option symbol indicates a manifold assembly equipped with the supply spacer.

The supply port can be provided to each valve.

Use this option when supply air with different pressures depending on the valve.

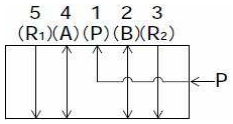
Specifications

Model	Flow characteristics Note 1,2				Weight [g]
	1(P)→4(A)/2(B)		4(A)/2(B)→3/5(R)		
	C[dm3/(s･bar)]	B	C[dm3/(s･bar)]	b	
4G1	0.70	0.23	0.93	0.16	8
4G2	1.6	0.17	1.8	0.16	35

Note 1 This is a value when a valve is mounted.

Note 2 Effective sectional area S and sonic conductance C are converted as S≒5.0 x C.

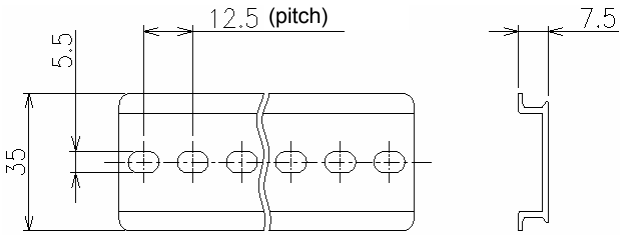
JIS symbol



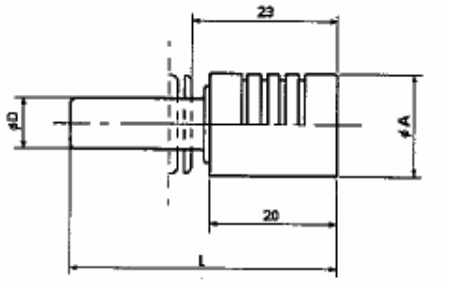
8.4 Accessories

1) Mounting rail

All the angular corners are rounded. The mounting rail is cut at a mounting pitch of 12.5 mm.

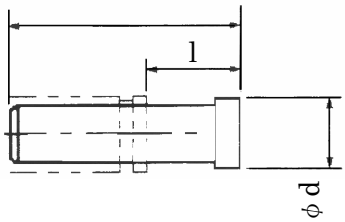


2) Silencer



Model	L	A	D
SLW-H6	41	16	6
SLW-H8	42	16	8
SLW-H10	53	20	10

3) Blank plug



Model	D	L	l	d
GWP4-B	φ4	27	12	6
GWP6-B	φ6	29	12.5	8
GWP8-B	φ8	33	14	10
GWP10-B	φ10	40	18.5	12

4) Pipe plug

4G1-M5

4G*-*P

Model	Nominal designation of thread
4G1－M5	M5
4G2－06P	Rc1/8

8. 5 Kit parts

1) Commodity

Part name	Model
Coil assembly	4G-[Wiring type] - [Option] - COIL - [Voltage] [Voltage]: 1: AC100V / 3: DC24V / 4: DC12V [Option]: Blank : standard type / A : Ozone-resistant [Wiring type]: Blank : Grommet lead wire / E* : E-type connector / E*J : EJ-type connector / A2N : A-type connector / B : DIN terminal box
E-connector assembly	4G－SOCKET－ASSY－[Electric wire connection]－[Voltage] [Voltage]: 1: AC100V / 3: DC24V / 4: DC12V / blank : EJ-connector [Electric wire connection]: E* : E-connector / E*J : EJ-connector
DIN terminal box	4G-TERMINAL-BOX-[Voltage]

2) Cartridge type push-in joint

Model name	Description	Model
4G1	φ4 straight	4G1-JOINT-C4
4G1	φ6 straight	4G1-JOINT-C6
4G1	φ4 Elbow short	4G1-JOINT-CL4
4G1	φ4 Elbow long	4G1-JOINT-CLL4
4G1	φ6 Elbow short	4G1-JOINT-CL6
4G1	φ6 Elbow long	4G1-JOINT-CLL6
4G1	Plug cartridge	4G1-JOINT-CPG
4G2	φ4 straight	4G2-JOINT-C4
4G2	φ6 straight	4G2-JOINT-C6
4G2	φ8 straight	4G2-JOINT-C8
4G2	φ6 Elbow short	4G2-JOINT-CL6
4G2	φ6 Elbow long	4G2-JOINT-CLL6
4G2	φ8 Elbow short	4G2-JOINT-CL8
4G2	φ8 Elbow long	4G2-JOINT-CLL8
4G2	Plug cartridge	4G2-JOINT-CPG
N4G1-Q	φ6 straight	N4G1-Q-JOINT-6
N4G1-Q	φ6 Elbow short	N4G1-Q-JOINT-6L
N4G1-Q	φ6 Elbow long	N4G1-Q-JOINT-6LL
N4G1-Q	φ8 straight	N4G1-Q-JOINT-8
N4G1-Q	φ8 Elbow short	N4G1-Q-JOINT-8L
N4G1-Q	φ8 Elbow long	N4G1-Q-JOINT-8LL
N4G2-Q	φ8 straight	N4G2-Q-JOINT-8
N4G2-Q	φ8 Elbow short	N4G2-Q-JOINT-8L
N4G2-Q	φ8 Elbow long	N4G2-Q-JOINT-8LL
N4G2-Q	φ10 straight	N4G2-Q-JOINT-10
N4G2-Q	φ10 Elbow short	N4G2-Q-JOINT-10L
N4G2-Q	φ10 Elbow long	N4G2-Q-JOINT-10LL

3) Masking plate kit

Model name	Model	Description
4G1	4G1-MP	1 Masking plate, 1 Gasket, 2 Mounting screws
4G2	4G2-MP	1 Masking plate, 1 Gasket, 2 Mounting screws, 2 PR check valve

4) Selecting the expansion socket assembly

Calculate distance W between the expansion location and wiring block (Fig), and select the appropriate cable length from Table. The required socket assembly differs for a side and b side solenoids. Fig shows the left specification wiring block. Calculate distance W between the expansion location and wiring block the same as for right specifications.

Calculation of W

· When MN4G1

W = (10.5 x n) + (16 x m) + (10.5 x l)

· When MN4G2

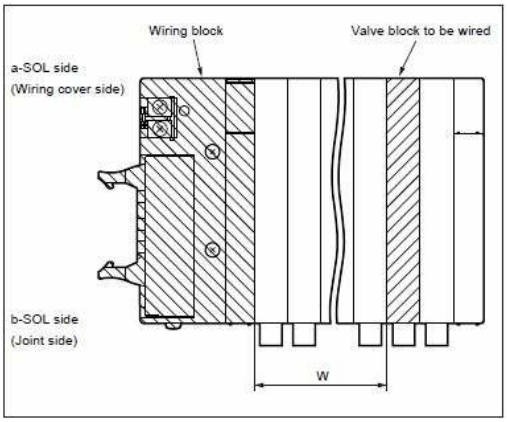
W = (16 x n) + (18 x m) + (10.5 x l)

n: Valve block quantity m: Supply/exhaust block quantity l: Partition block quantity

· When MN4GX

Calculate using 16 for the mix block width.

Fig



<<Expansion socket assembly model>>

For a side solenoid

N4G - SOCKET - ASSY - A - Selection no.

For b side solenoid

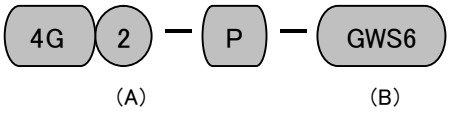
N4G - RELAY- SOCKET - Selection no.

<<Table>> W length - selection No. table

Selection no.	Wiring type		
	T10/11(R)	T30/5＊/6＊(R)	T7＊
2		0	25 or less
3	20 or less	0 to 30	25 to 55
4	20 to 70	30 to 80	55 to 105
5	70 to 120	80 to 130	105 to 155
6	120 to 170	130 to 180	155 to 205
7	170 to 260	180 to 270	205 to 295
8	260 to 350	270 to 360	295 to 385
9	350 to 450	360 to 460	385 to 485
10	450 to 570	460 to 580	485 to 605

5) supply spacer

supply spacer model no.



Symbol	Descriptions	Valve model No. 4GD1	4GE1	4GD2	4GE2
(A)	supply spacer model no.				
1	4G1	●			
2	4G2			●	
(B)	Port size				
Blank	M5 (4G1), Rc thread (4G2)	Note 1 ●		Note 1 ●	
GWS4	φ4 joint	●			
GWS6	φ6 joint	●		●	
GWS8	φ8 joint			●	

Note on model no. selection

Note 1:No symbol indicates 4G1: M5 , 4G2: Rc1/8

Precautions for mounting a manifold

- Designate the supply spacer's mounting location and quantity in individual catalog manifold specifications.
- This is not applicable to mounting of a manifold in combination with a masking plate.

6) PR check valves kit

Model name	Model	Description
4G1	4G1-PR	2 PR check valves (for one unit)
4G2	4G2-PR	

7) Gasket with a malfunction prevention valve kit

Model name	Model	Description
4G1	4G1-CHECK-VALVE	1 Gasket with check valve
4G2	4G2-CHECK-VALVE	

8) Gasket kit

Model name	Model	Description
4G1	4G1-GASKET	1 Gasket (for solenoid valve)
	4G1-MP-GASKET	1 Gasket (for masking plate)
4G2	4G2-GASKET	1 Gasket (for solenoid/masking plate common)

9) Mounting screws (For mounting a solenoid valve, One set: 10 screws)

Model name	Model	Description
4G1	4G1-SET-SCREW	10 Mounting screws (for 5 units)
4G2	4G2-SET-SCREW	

10) Gasket for coil assembly

Model	Description
4G-COIL-GASKET	1 Gasket

11)Mounting screw for coil assembly (One set: 10 screws)

Model	Description
4G-COIL-SET-SCREW	10 Mounting screws (for 5 units)

12) Serial transmission slave unit

Wiring type	Model	Description
T6A0	4G-OPP3-0A	1 Slave unit
T6A1	4G-OPP3-1A	
T6C0	4G-OPP3-0C	
T6C1	4G-OPP3-1C	
T6E0	4G-OPP3-0E	
T6E1	4G-OPP3-1E	
T6G1	4G-OPP3-1G	
T6J0	4G-OPP3-0J	
T6J1	4G-OPP3-1J	
T7C0	4G-OPP4-0CA	
T7C1	4G-OPP4-1CA	
T7D1	4G-OPP4-1D	
T7E0	4G-OPP4-0E	
T7E1	4G-OPP4-1E	
T7G1	4G-OPP4-1G	
T7L1	4G-OPP4-1L	

13) DIN rail

Model	Description
N4G-BAA[*1]	1 DIN rail

*1: DIN rail cut length, 7) Select from the table below.

Table. DIN rail length

Rail length	Mounting pitch	Rail length	Mounting pitch
87.5	75	300	287.5
100	87.5	312.5	300
112.5	100	325	312.5
125	112.5	337.5	325
137.5	125	350	337.5
150	137.5	362.5	350
162.5	150	375	362.5
175	162.5	387.5	375
187.5	175	400	387.5
200	187.5	412.5	400
212.5	200	425	412.5
225	212.5	437.5	425
237.5	225	450	437.5
250	237.5	462.5	450
262.5	250	475	462.5
275	262.5	487.5	475
287.5	275	500	487.5