CKD

Protective structure IP65

New Product

PLUG-IN BLOCK MANIFOLD W4G2 SERIES

CKD Corporation

CC-654A 2

Advanced "ecological" and "human" protection W4G2

Incorporating high endurance and environment friendly concept, pneumatic 5 port valve plug-in block manifold W4G2 having outstanding ease of use, such as, high performance of new age for maintenance and installation

Wide product line-up with New function

-Manual override

Type with OFF function and of non-locking are available.

Non-locking/locking common type (Standard) | With OFF function | Non-locking

-Serial transmission

Compatible with AS-i and DeviceNet

-How to install manifold

DIN rail mount added

MW4GB2-T8*D

-Electric connection

D sub-connector and flat cable are newly added.

Environmental friendly Grade up

Upgraded endurance

- Protective structure **IP65** (Dust/jet-proof type)

Compatible with various working environment

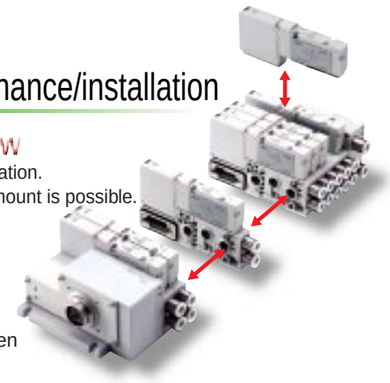
Upgraded environmental friendly concept

- Halogen free lead wire friendly to environment is used for inside wiring.
- Material name specified
  Considering recycle, etc., material name is stamped on the main items.

Easy operation Grade up

Upgraded ease of maintenance/installation

- DIN rail mount added New
  DIN rail mount added for easy installation.
  Change of specification from direct mount is possible.
- Easy valve change
  Plug-in method is used.
- Wiring work reduced when expanding manifold
  Connector joint type is used between manifold blocks.
  (Excluding an AC specification).



Upgraded flexibility

- Wide electric connection New

Common gland | Multi connector | Serial transmission (CC-Link / AS-i / Device Net) | D sub-connector (Equivalent to IP40) | Flat cable (Equivalent to IP40)

- Network controlled peripheral devices
  Network control of valve and sensors around manifold is achieved by expansion input/output block. (Serial transmission)
- Selective piping direction
  Upward, sideways and rear direction * available
  (*Excluding DIN rail mount)
- Compatible with use of multi-pressure

Reliability Grade up

- Response time 24ms or less
  (CKD data values: 2 position single)
- Service life 60 million cycles and over
  (At 0.5 MPa with clean air)

Safety Grade up

- Manual override is 3 types. New
  (1) With OFF function
  Easy start-up of equipment and maintenance is achieved since changeover to OFF is allowed individually even when the valve power supply is turned on. Normal manual operation possible. (Push/non-locking).
  (2) Non-locking
  (3) Non-locking/locking common type (standard)

- Wrong operation of manual override prevented by protective cover
- Cylinder malfunction caused by leading back pressure prevented by check valve integrated
- Air supplying port filter equipped (discrete type is an option.)

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W4G2 Series

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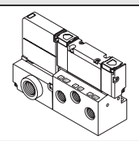
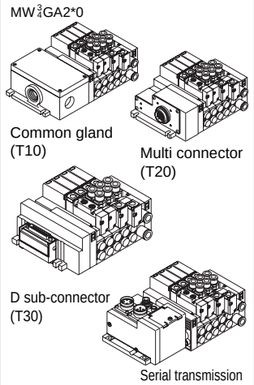
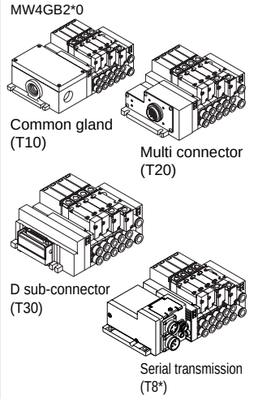
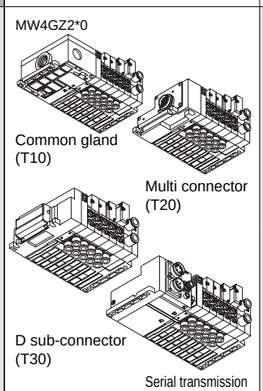
Always read precautions on Intro 4 to use this product properly and safely.

MW$^{3}_{4}$GA/4GB/4GZ Series variation

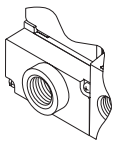
Note 1: It is optional.
Note 2: It is also integrated in port P.
Note 3: Option M and M7 can not be selected together.

Series variation/appearance			Model no.		Effective sectional area 2 pos. mm²	Page	Protective structure	Solenoid position (2 position) Normally closed	Solenoid position (2 position) Normally open	Solenoid position 3 position Single	Solenoid position 3 position Double	Solenoid position 3 position All ports closed	Solenoid position 3 position ABR connection	Solenoid position 3 position PAB connection	Solenoid position Mix	Standard Non-locking/locking common manual override	Standard Protective cover of manual override	Standard Check valve H	Standard P port filter	Standard Surge suppressor/light	Option Non-locking manual override (Note 3) M	Option	Option With OFF function Manual override (Note 3) M7	Option External pilot K	Option Ozone/coolant proof A	Option Port A/B Filter integrated F	Option I/O block Y**	Mount type Direct mount	Mount type DIN rail mount	Related products Tag plate	Port A/B Push-in joint 4 dia. C4	Port A/B Push-in joint 6 dia. C6	Port A/B Push-in joint 8 dia. C8	Port A/B Push-in joint Radial (upward) 6 dia. CL6	Port A/B Push-in joint Radial (upward) 8 dia. CL8	Port A/B Female thread Rc 1/8 06	Port A/B Female thread Rc 1/4 08	Port P/R Push-in joint 8 dia. C8	Port P/R Push-in joint 10 dia. C10	Port P/R Female thread Rc 1/4 08	Electric connection Gland Blank	Electric connection I/O connector R1	Electric connection Common gland T10	Electric connection Multi connector T20	Electric connection D sub-connector T30	Electric connection Flat cable connector T5*	Electric connection Serial transmission T8*	Voltage AC 100 V 1	Voltage DC 24 V 3	Voltage DC 12 V 4
Discrete	Sub-base porting	 W4GB2*0	W4GB2		13	1	IP 65			●	●	●	●	●		●	●	Note 1		●	●			●			●										●								●	●	●
Reduced wiring manifold	Body porting	 MW$^{3}_{4}$GA2*0 Common gland (T10) Multi connector (T20) D sub-connector (T30) Serial transmission (T8*)	MW3GA2 MW4GA2 (NW3GA2) (NW4GA2)	Common gland (-T10)	9	5	IP 65	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●																●	●	●
				Multi connector (-T20)			IP 65	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●																●	●
				D sub-connector (-T30)			IP 40	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●																●	●
				Flat cable Connector (-T5*)			IP 40	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●																●	●
				Serial transmission (-T8*)			IP 65	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●																●	
	Sub base side porting	 MW4GB2*0 Common gland (T10) Multi connector (T20) D sub-connector (T30) Serial transmission (T8*)	MW4GB2 (NW4GB2)	Common gland (-T10)	9	21	IP 65			●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●																●	●
				Multi connector (-T20)			IP 65			●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●																●	●
				D sub-connector (-T30)			IP 40			●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●																●	●
				Flat cable Connector (-T5*)			IP 40			●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●																●	●
				Serial transmission (-T8*)			IP 65			●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●																●	
	Sub base back porting	 MW4GZ2*0 Common gland (T10) Multi connector (T20) D sub-connector (T30) Serial transmission (T8*)	MW4GZ2 (NW4GZ2)	Common gland (-T10)	9	21	IP 65			●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●																●	●
				Multi connector (-T20)			IP 65			●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●																●	●
				D sub-connector (-T30)			IP 40			●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●																●	●
				Flat cable Connector (-T5*)			IP 40			●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●																●	●
				Serial transmission (-T8*)			IP 65			●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●																●	

Electric connection

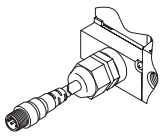
Discrete

Blank Gland

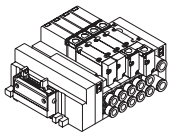


R1 I/O connector

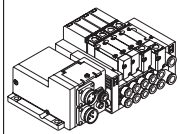
-Lead wire length 500mm



T5* Flat cable connector

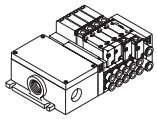


T8* Serial transmission

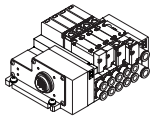


Reduced wiring manifold

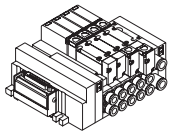
T10 Common gland



T20 Multi connector

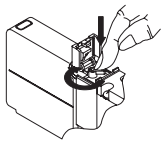


T30 D sub-connector



Manual override

-Non-locking
Locking common
(Standard)

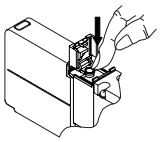


(1) As non-locking
ON when pushed
OFF when released

(2) As locking
PUSH + turn 90 deg. clockwise to maintain ON state
Turn counterclockwise to release lock

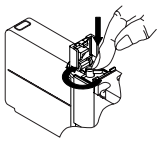
Other options

M Non-locking manual override



(1) PUSH to turn ON, while release to turn

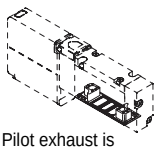
M7 Manual override with OFF function



(1) Normal manual operation
(Non-locking)
ON when pushed
OFF when released

(2) OFF function operation
(Locking at energized)
PUSH + turn 90 deg. clockwise to maintain stop state of pilot air supply.
Turn counterclockwise to unlock and to supply pilot air.

H Check valve



Pilot exhaust is provided as standard.

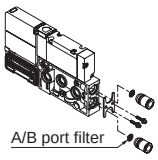
K External pilot

Individual circuit specifications of main pressure and pilot pressure

A Ozone/coolant proof

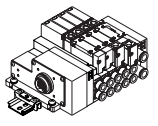
Select this to prevent coolant from entraining into or to protect from ozone effect, etc.

F AB port filter
Integrated



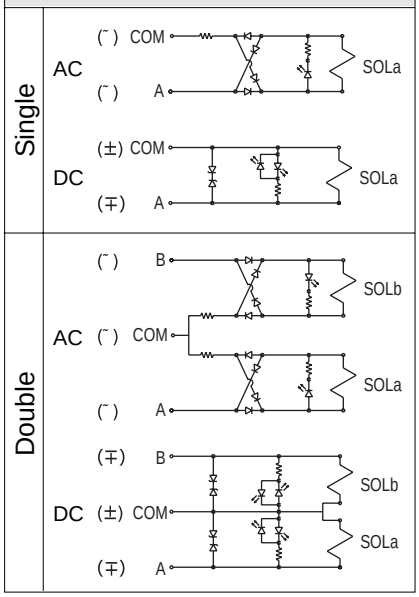
A/B port filter

D DIN rail mount



Electric connection circuit diagram (solenoid valve inside)

Light/surge suppressor (standard)



Zener diode is used for surge suppressor.

Pneumatic components

Safety precautions

Always read this section before starting use.

When designing and/or manufacturing equipment using pneumatic components, it is the duty that the designers must ensure and check the safety of the system driven by mechanisms, pneumatic control circuits and electric controls that control these pieces of equipment, then the safe equipment must be manufactured.
It is important that the selection, use, handling and maintenance of the product will be made appropriately to ensure that CKD products be used safely
Always observe warning and cautions to ensure the safety of equipment.
Therefore, we are strongly asking you to ensure and check the safety of equipment, then manufacture the safe equipment.

Warning

1 Use the product in accordance of specifications. If the product is used other than the specifications or under the conditions below, please consult with CKD for its availability.

❶ Use for special applications requiring safety including nuclear energy, railroad, aviation, vehicle, medical equipment, components directly contacting to beverage, food, etc., amusement equipment, emergency shutoff circuit, press machine, brake circuit, safeguard, etc.
❷ Use for applications where life or asset could be adversely affected, and special safety measures be required.

2 Warning and cautions on the pages below must be observed to prevent accidents.
Modification and machining of the product must not be done.

3 The product is designed and manufactured as a part for general industrial machines.
Therefore, the person whom had sufficient knowledge and experiences must handle these products.

4 For the safety on equipment design, corporate standards and regulation, etc., must be observed.
ISO 4414, JIS B 8370 (pneumatic system rules) JIS B 8368 (pneumatic cylinder),
JPAS 005 (principles of use, selections of pneumatic cylinder), high pressure gas security law, Occupational Safety and Sanitation Laws and other safety rules

5 Do not remove components before confirming safety.

❶ Inspection and preparation of machine/equipment must be done after confirming position locking measures of object driven and prevention of uncontrolled motion, etc.
❷ When dismounting a component, check if the safety measures above be taken, turn off power sources such as air and power supplies of the equipment, and evacuate compressed air in the system, then perform the work.

6 When restarting machine/equipment, check if popping out prevention measures be taken, then perform the work.

7 The catalog/instruction manual must be read very well to sufficiently understand the contents before using the product. The catalog/instruction manual must be kept at the place where an operator can read them anytime.

* 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 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, the important description that must be observed is listed.

Pneumatic components:

Warning/cautions to secure safety

Always read this section before starting use.

Warning — Design & selection

Circuit design

1 Properties of compressed air must be understood before designing a pneumatic circuit.

- If instantaneous stop and holding its position are required at emergency shutdown, performance as well as mechanical, hydraulic and electric systems is not achieved.
- Popping out, spring out and leakage will be caused by compressibility and expansibility as pneumatic properties.
- Air supply and exhaust from/to valve must be operated simultaneously.
  Earlier air supply will create delay of switching an actuator, while earlier exhaust will prevent speed control of an actuator to create popping out.

2 Check if the product withstands working environment before starting use.

- The product can not be used in the environment containing corrosive gas, chemical liquids, solvent, steam or ozone. If the product is subjected to oil and metal powder (spatter and swarf, etc.), the product must be protect.
- These products can not be used in the environment containing flammable gas except explosion proof valves.

3 Simultaneous energizing must be avoided for switchover signal of 2, 3 position double solenoid type.

4 3 position valve must not be used for braking and pressure holding.

- Air leakage may result in change in stop position and pressure drop.

5 If holding the stop position for long time is required, consult with CKD.

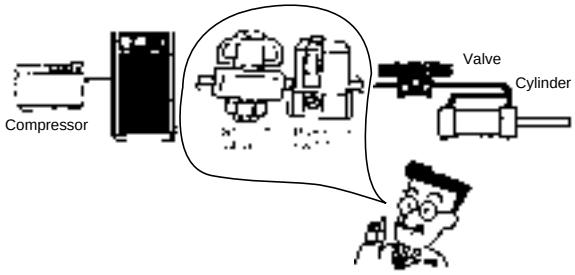
6 When a valve is energized continuously for long term except a model of a long term continuous energizing type, or when energizing time is longer than de-energizing time, consult with CKD.

7 Care must be taken for electric circuit at emergency shutdown and cylinder operation at service interruption.

- Once 2 position double solenoid model is operated, if the valve is switched, unless electric signals of reverse operation are not inputted, the current status is held.

8 Install " pressure switch " and " shut-off valve " on compressed air inlet of equipment.

- If the set pressure of pressure switch is not reached, operation must be disabled. Shut-off valve exhausts compressed air remaining in a pneumatic circuit to prevent an accident caused by an action of pneumatic components by residual pressure.



Caution — Design & selection

1 A lubrication method to pneumatic components must be decided to perform proper maintenance.

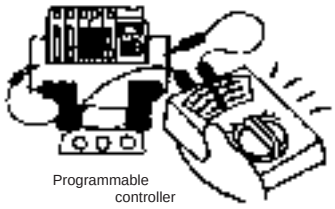
- 4G series is pre-lubricated. If lubrication is required, use additive-free turbine oil Class 1 (ISO-VG32). Do not use spindle oil, nor machine oil since malfunction by expansion of rubber part is caused.
  When lubricating, do not stop lubrication since pre-lubricated lubricant may flow out. Insufficient lubrication will very significantly reduce operation performance to cause malfunction.
  If lubrication is too much, or if pressure is very low, the response time may delay. The response time on the catalog is the time when pre-lubricated, 0.5 MPa and ON.

2 Write down maintenance conditions on the instruction manual of equipment.

- Performance of the product will be very significantly reduced depending on operating conditions, working environment and maintenance, and in some cases, the safety may not be secured. Proper maintenance is necessary to maintain the product in the proper conditions.

3 Leakage current must be checked to prevent malfunction caused by leakage current from other controls.

- When a programmable controller, etc., is used, leakage current may adversely affect to a valve to malfunction.
  Care must be taken since a value affected by leakage current may vary per the valve property.



When AC100 V	2.0mA or less
When DC 12 V	1.5mA or less
When DC 24 V	1.8mA or less

4 Avoid the use such as restricting air supplying port and atmospheric release.

Air supplying port must not be restricted !

- If of an internal pilot operated type, supply pressure will drop below than usage range, and the valve may malfunction. In this case, use an external pilot operated type.

⚠ Caution — Design & selection

5 Working environment

If the use other than the specifications or special applications, consult with CKD for the specifications.

- Air supply
  * When cutting lubricant is subjected to a cylinder rod. (Cutting lubricant will intrude in inside of pipe connecting to a valve through a cylinder to cause malfunction.)
  * When a special oil is used in the compressor.
  * When ozone is forming in the supplied air.

- Ambient temperature
  * When the product is used at high temperature more than 55℃ or low temperature less than -5℃.

- Working environment
  * When cutting lubricant, etc., is subjected to a valve directly. (This may result in leakage of electricity, coil burning, crack of resin, and malfunction, etc. Protect the product to be installed in a cover or a panel, etc.)

- Vibration & impact
  * The use with more than vibration 49m/s^2 and impact 294m/s^2 must be avoided.

- Low pressure use
  * When using the product below than the minimum working pressure, external pilot type must be used. Also, the use with low vacuum or pressurizing other than 1 (P) must be avoided.

6 Lubrication

The product is usually used without lubrication, however, if lubrication is required, once lubricated, the lubrication must not be interrupted during operation, and continue to lubricate. If lubrication is more than necessary, or if pressure is very low, the response time may delay.
The response time may vary depending on a change in ambient temperature.

⚠ Warning — Installation & adjustment

Installation

1 When installing a valve, do not support it with pipe.

- Fix the valve body to install.

2 Cleaning and/or painting with water or solvent must not be done after installation, or some resin parts may break.

- A paint agent may close the pilot exhaust port to cause malfunction.

3 If a valve is installed in a control panel, or if energizing time is long, take countermeasures for radiation of heat as ambient temperature of the valve is always maintained within the specified temperature range.

4 Impress voltage

- Apply the specified voltage to the valve properly.
  Applying wrong voltage prevents to achieve the specified function, causing damage/damage by burning of the product.

Pneumatic components:

Warning/cautions to secure safety

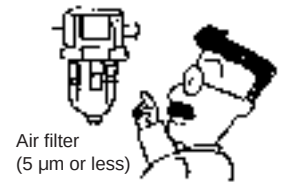
Always read this section before starting use.

⚠ Caution — Installation & adjustment

Installation

1 Secure spaces for installation, removing, wiring and plumbing around a valve.

2 Install an air filter immediately before the circuit using pneumatic components.



3 Check of wiring

- Check if wiring is correctly done after wiring.

Piping

1 When piping, sealing tape should be applied to the position 2mm and over inside from the top of screw section of pipe in the opposite direction of screw.

- If sealing tape projects from the top in screw section of pipe, and sealing tape caught by screw will be separated, and the chips will enter into the valve inside, and may cause failure.

2 Do not remove any valve packing bag until immediately before piping.

- If a packing bag is removed before piping, a foreign material will enter into the valve inside from a piping port, causing failure and malfunction, etc.

3 When piping, always air-flush the tube just before connecting to pneumatic components.

- Any entrained foreign material must not enter into the inside of pneumatic components during piping.

4 When connecting port, tighten with adequate torque.

- Failure to observe this will lead to air leak and/or screw damage.
  To avoid scratches on the screw thread, tighten it with a hand at first, then use a tool.

[Reference values]

Set screw	Tightening torque N·m
M3	0.3 to 0.6
M5	1 to 1.5
Rc 1/8	3 to 5
Rc 1/4	6 to 8
Rc 3/8	13 to 15

5 When piping, the connection section of port must not be removed by motion, vibration and stretch of equipment, etc.

- Dislocated pipe on the exhaust side of pneumatic circuit does not enable speed control of any actuator.
- If of chuck holding mechanism, a chuck will be released, creating a dangerous situation.

6 Any exhaust port of the valve must not be restricted less than the port size.
Valving element operation causes respiration in an exhaust port of the valve, so a foreign material around exhaust port may be absorbed, or if the exhaust port is located upward, a foreign material enter.
Install a silencer, or pipe exhaust port facing downward.

- If exhaust is not smooth, any actuator will not work properly. If manifold is used, exhaust of a valve may prevent normal operation of other valves.

7 When compressed air is supplied after connecting pipe, supply the air without applying high pressure suddenly.

- Piping connection could be dislocated, and a piping tube could bounce, causing an accident.
- Caution: If compressed air is supplied too much slowly, in some sealing mechanism in the valve, air leak may be created since seal pressure is not produced.

8 When compressed air is supplied after connecting pipe, always check if there are no air leak in all of connecting port sections.

- Apply liquid soap to connecting port section with a brush to check leakage of air.

⚠ Caution — Installation & adjustment

9 When nylon tube and urethane tube are used for piping material, care must be taken in the following.

- Use flame resistance tube or metal steel pipe in the environment that spatter will splash.

- For piping to be used for both hydraulics and pneumatics, hydraulics hose must be used.
  If a standard push-in joint is used with a spiral tube, connect the base of tube with a hose band, or revolution will be created, and holding performance decrease.
  Use joint fitting in the environment with high ambient temperature. Push-in joint is not available.

10 Piping

- Applicable tube
  Use our specified tube for a valve with push in joint.
  Soft nylon (F-1500 series)
  Urethane rubber (U-9500 series)
  When using common tube, care must be taken for accuracy of external dimensions, wall thickness and hardness. Use urethane tube with hardness of 93 deg. and over (rubber hardness meter).
  If tube does not meet diameter accuracy and hardness, chuck force may be reduced, the tube may come off, or be difficult to insert.

Tube dimension

Outside diameter mm	Inside diameter mm	
	Nylon	Urethane rubber
4 dia.	2.5 dia.	2 dia.
6 dia.	4 dia.	4 dia.
6.4 dia.	4.6 dia.	4.2 dia.
8 dia.	5.7 dia.	5 dia.
10 dia.	7.2 dia.	6.5 dia.
12 dia.	8.9 dia.	8 dia.

Tolerance of outer diameter

Soft/hard nylon	±0.1mm
Urethane rubber 4, 6 and 6.4 dia.	+0.1mm -0.15mm
8, 10 and 12 dia.	+0.1mm -0.2mm

- Bending radius of tube
  Bending radius of tube applies the minimum bending radius and over. (or may result in leakage.)

Bore size	Minimum bending radius mm	
	Nylon	Urethane rubber
4 dia.	10	10
6 dia.	20	20
8 dia.	30	30
10 dia.	40	40
12 dia.	55	50

- Cut of tube
  Use a tube knife-(AZ1200) to cut the tube vertically to axial direction. Inserting tube diagonally cut may result in air leak.

- Tube connection
  Providing strait section as long as applicable tube outside diameter from the end of a joint, shape bending pipe must be avoided near to the port of joint to be inserted. Tube tension to sideways must not exceed 40N.

- Applicable blanking plug
  Use our specified blanking plug for a valve with push in joint.
  Blanking plug GWP*-B series

11 Port indication

A piping port indication in accordance with ISO and JIS standards such as 1P and 4A, etc., is exhibited on the piping port.

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

- Installation attitude of the valve is free. Check port symbol to pipe without producing reverse action of cylinder, etc., since in 4G series, port position of 4 (A), 2 (B)/5 (R1) and 3 (R2) are located in the opposite side of 4K series.

Pneumatic components:

Warning/cautions to secure safety

Always read this section before starting use.

⚠ Warning — Usage & maintenance

Air quality

1 Do not supply any fluid other than compressed air.

2 For compressed air, clean air that contains no corrosive gas must be used.

Usage & maintenance

1 When performing maintenance service, turn off the power before starting the work, and stop air supply, check if there is no residual pressure.

- These are the requirements to secure safety.

2 If used with low frequency (not used longer than 30 days), do a test-run of the valve every 30 days to prevent malfunction, i.e. the product must be checked if it be in normal conditions.

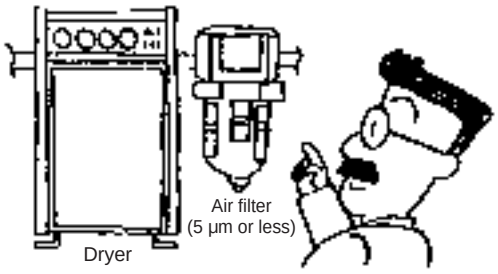
3 When disassembling and/or assembling a valve, the instruction manual of the product must be perused, after understanding sufficiently, then start disassembling or assembling.

- The person who understood the structure and operational principle of the valve must handle these products.
  Pneumatics technique certification class 2 or higher level is required.

⚠ Caution — Usage & maintenance

Air quality

1 Use dry compressed air without forming water drips in inside of pipe.



- If the temperature will drop in pneumatic circuit or components, drain be formed.
- Drain will enter into the air path in pneumatic components to block the flow path instantaneously, causing malfunction.
- Rust could be formed by drain, therefore pneumatic components fail.
- Drain will wash lubricant to cause lubrication defective.

2 Use compressed air without oxidized oil content, tar and carbon of air compressor, etc.

- Oxidized oil content, tar and carbon, etc., enter into pneumatic components to stick, and to increase resistance in sliding section, causing malfunction.
- Oxidized oil content, tar, carbon, etc., and supplied lubricant are mixed to wear a sliding section of pneumatic components.
- If much tar and carbon is produced, install a submicron air filter in front of valve to remove.

3 Use compressed air without solid foreign material.

- Solid foreign material of compressed air will enter into the pneumatic components inside to cause abrasion and sticking in a sliding section.

4 Once lubricated to pre-lubricated valve, oil-free can not be maintained.
Operation must be started after checking the state of grease.

- Either method i.e. using pre-lubricated pneumatic components or lubrication required ones must be determined, then the proper management must be done.
- When lubricating, use ISO VG32 (additive-free) turbine oil.

⚠ Caution — Usage & maintenance

Usage & maintenance

1 Induct daily inspection and periodic inspection according to the schedule for proper maintenance control.

● Insufficient maintenance control will very significantly reduce performance of the product to result in an accident and problem such as short service life and malfunction caused by damage.

1. Pressure control of air supply

● Is the set pressure supplied? Does the indicator of pressure gauge show the set pressure during operating equipment?

2. Pneumatic filter control

● Is drain exhausted properly?
Is the bowl and element in normal contamination level?

3. Leakage control of compressed air in connecting port section

● Is the connecting section of a movable part normal, especially?

4. Valve operational status control

● Is operation delay and exhaust condition normal?

5. Pneumatics actuators operational status control

● Is operation smooth? Is terminal stop state normal? Is connecting section with load normal?

6. Lubricator control

● Is oil capacity adjustment normal?

7. Lubricant control

● Is the regular lubricant refilled?

Valve replacement

When replacing a valve, install the valve without dislocating a gasket and pilot check valve.

	Screw Size	Proper tightening torque Torque(N·m)
4G2	M2.5	0.25 to 0.30

Individual cautions

⚠ Warning — Manual override

Introduction

❶ This valve is an internal pilot operated valve. If air is not supplied to port P, even if manual override is operated, main valve does not switch.

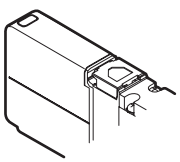
❷ A protective cover of manual override is equipped as standard. A protective cover of manual override will be closed when shipping, so initially manual override is protected by cover and is invisible. Open protective cover when operating the manual override.
If locking manual override is not released, the protective cover is not closed, so care must be taken.

❸ A non-locking/locking common manual override is equipped as standard. Pushing while rotating can lock the device. When locking, always push the lever at first, then turn it. If not pushed, while turned, the manual override may be damaged, leading air leakage.

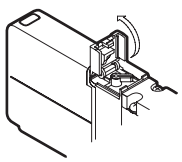
How to open/close protective cover of manual override

When opening/closing a protective cover of manual override, do not apply excessive force. Excessive external force may result in a failure.

W4G2 series

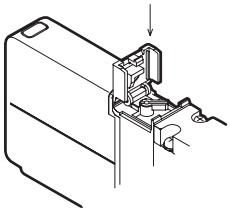


Turn type

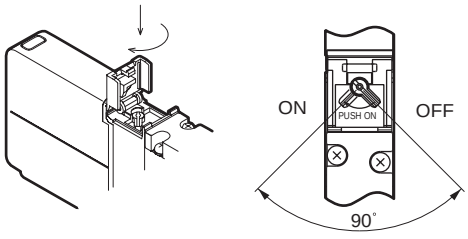


Operation of manual override

❶ Push/non-locking operation
Push to the arrow direction until it stops.
If detached, manual override is unlocked.



❷ During push/lock operation
Push the lever, then turn 90 deg. to the arrow direction to use.
Even if detached, manual override is not unlocked.



Warning

When operating the manual override, check if there is no body near the cylinder that will be operated before starting operation.

Pneumatic components:

Warning/cautions to secure safety

Always read this section before starting use.

⚠ Caution — Manual override

Manual override with OFF function

This can switch main valve even if energized since supply of pilot air at energized is stopped forcibly.
When using OFF function, for 2 position single and 3 position ABR connection PAB, care must be taken since a cylinder is activated immediately.

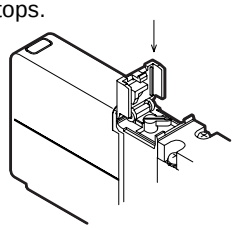
Output port destination list

Solenoid position			OFF function (energized side manual)		De-energized side manual
			No operation	Operation	Operation
2 position	Single	a side sol at energized	4(A)	→ 2(B)	-
	Double	a side sol at energized	4(A)	4(A) →	2(B)
		b side sol at energized	2(B)	2(B) →	4(A)
3 position	all ports closed	a side sol at energized	4(A)	4(A) →	2(B)
		b side sol at energized	2(B)	2(B) →	4(A)
	ABR connection	a side sol at energized	4(A)	- →	2(B)
		b side sol at energized	2(B)	- →	4(A)
	PAB connection	a side sol at energized	4(A)	4(A)/2(B) →	2(B)
		b side sol at energized	2(B)	4(A)/2(B) →	4(A)

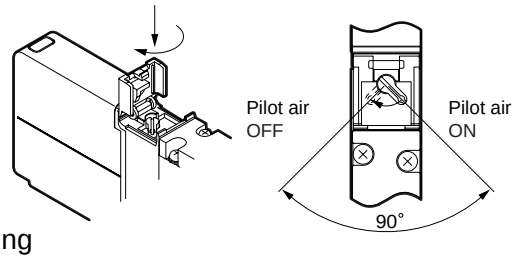
*: De-energized side manual is push/non-locking operation.

Operation of manual override with OFF function

❶ During normal use (push/non-locking operation)
Push to the arrow direction until it stops.
If detached, the manual override is unlocked.



❷ OFF function use (push/lock operation at energized)
Push the lever, then turn it 90 deg. to the arrow direction.
Even if detached, the manual override is not unlocked.



Warning

When operating the manual override, check if there is no body near the cylinder that will be operated before starting operation.

⚠ Caution — Working environment

IP65 is (IEC60529[IEC529: 1989-11]) standard test method.
When water drip/cutting lubricant is directly subjected to a valve constantly, the product must not be used.

Explanation of protection property symbols and tests methods of IP65

-Protective structure

Note : IP-65 applies the following tests.

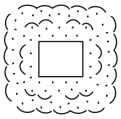
■IEC (International Electrotechnical Commission) standards

(IEC60529 [IEC529: 1989-11])

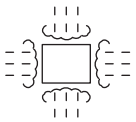
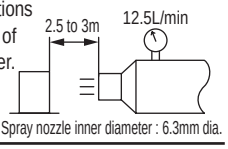
IP- * *

Protection property symbols (International Protection)

First property number (protection grade of foreign solid)

Grade	Degree of protection	
6	Dust proof type 	Powder dust does not intrude inside.

Second property number (protection grade of immersion)

Grade	Degree of protection		Overview of test method (fresh water to be used)
5	Protection for jet water 	Harmless even if it is subjected to jet water from nozzle from any directions.	Using the following test equipment, a sample (outline) will be sprayed per surface area 1m² from all directions for 1 minute, total of 3 minutes or longer. 

⚠ Caution External pilot (K) piping port

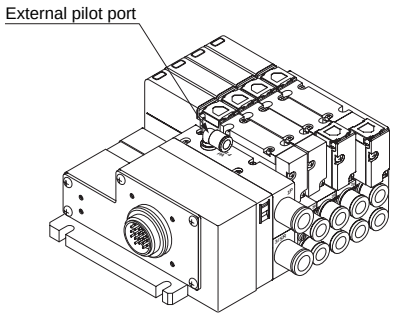
External pilot (K) type has individual air supply of pilot air. Care must be taken for connecting port position since air supply of pilot air has 6 dia. push-in joint. If piped incorrectly, the product may malfunction.

Port display

Applications		Display (ISO standards)
Pilot air	Air supplying port	12/14

*Pressurization of port A/B and port R is not available.

MW4G2



External pilot air supplying port has 6 dia. push-in joint on the top of supply and exhaust block.

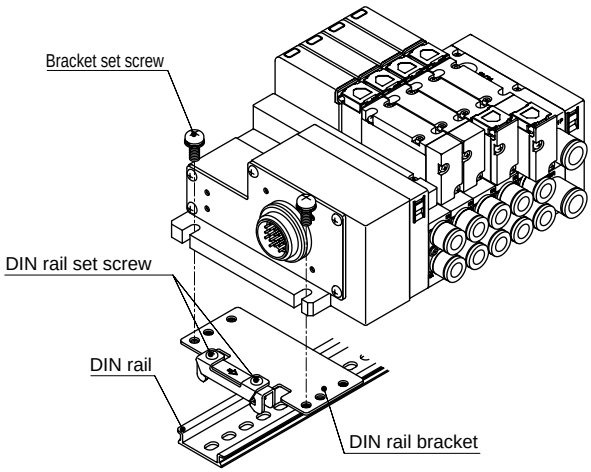
⚠ Caution How to install manifold

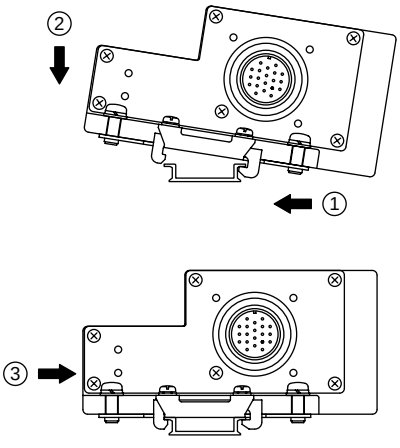
When installing with DIN rail

W4G2 series allows manifold of direct mount type to change to DIN rail mount type.
If installed incorrectly, care must be taken since drop/damage, etc., of manifold may be caused.
Also, when manifold total weight is more than 1kg, or where there are vibration/impulse, fix a DIN rail on fixing face 50 to 100mm interval, check if the installation has been done correctly. Installation attitude of the product is free, however, in some case, set screws could be loosened by resonance of vibration, check the status every operation to prevent drop of manifold.

*Refer to block configurations on P.57 for DIN rail bracket kit and DIN rails.

How to install a DIN rail.





1. Install DIN rail bracket.
   (Tightening torque: 1.8 to 2.3 N·m)
2. Catch DIN rail on the jaw in order of (1) (2).
3. Push the block to (3) direction.
4. Fix DIN rail with set screws.
   (Tightening torque: 1.2 to 1.6 N·m)

Pneumatic components:

Warning/cautions to secure safety

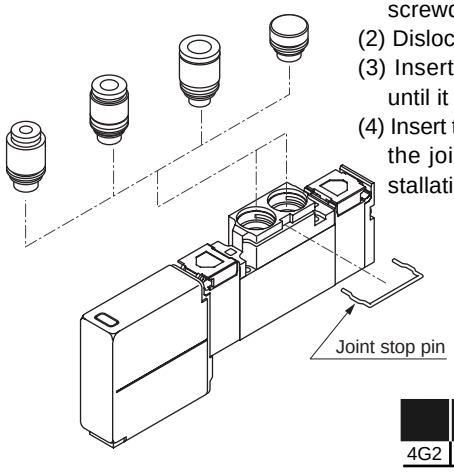
Always read this section before starting use.

Individual cautions

Caution — How to replace cartridge joint

When changing push-in joint size, the procedure must be checked. If installed incorrectly, or if fixing of set screw is not enough, air leakage, etc. may be caused.

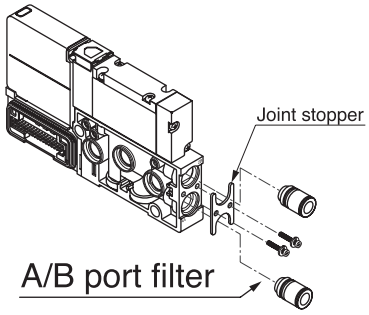
Body porting (A) type



(1) Dislocate a stop pin by a screwdriver, etc.
(2) Dislocate a joint.
(3) Insert the joint vertically until it hits the wall.
(4) Insert the stopper pin. Pull the joint to check the installation state.

	Size	Tightening Torque (N·m)
4G2	M2.5	0.25 to 0.30

Sub-base side porting (B) type
Sub-base back porting (Z) type



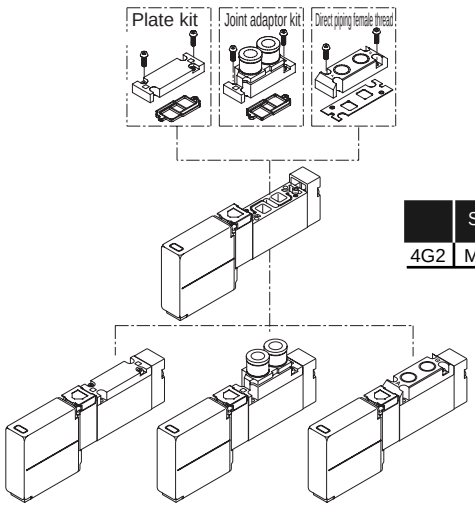
(1) Remove set screws.
(2) Dislocate a stopper plate and a joint simultaneously.
(3) Match a slit of joint for replacement to stopper plate to assemble temporally.
(4) Assemble stopper plate and joints simultaneously, and tighten set screws. Pull the joint to check installation state.

Cartridge type push-in joint model no.

Model	Part name	Model no.
4G2	4 dia. axial type	4G2-JOINT-C4
	6 dia. axial type	4G2-JOINT-C6
	8 dia. axial type	4G2-JOINT-C8
	6 dia. radial type (upward)	4G2-JOINT-CL6/CLL6
	8 dia. radial type (upward)	4G2-JOINT-CL8/CLL8
	Plug cartridge	4G2-JOINT-CPG

Caution — How to change connecting port specifications

When replacing the plate or joint adaptor installed on the body, or when changing from direct porting to base porting or vice versa, or when changing push-in joint to female thread or vice versa, if set screws are insufficiently fixed, air leakage may be caused.



	Size	Tightening Torque (N·m)
4G2	M2.5	0.25 to 0.30

Joint adaptor kit

Model	Part name		Kit model no.	Set part
4G2	4 dia. joint Adaptor kit	NC	4G2-JNT-ADAPTOR-KIT-C4NC	Joint adaptor
		NO	4G2-JNT-ADAPTOR-KIT-C4NO	Push-in joint 2 (NC and NO: 1)
			4G2-JNT-ADAPTOR-KIT-C4	(NC and NO: plug cartridge 1)
	6 dia. joint Adaptor kit	NC	4G2-JNT-ADAPTOR-KIT-C6NC	Gasket
		NO	4G2-JNT-ADAPTOR-KIT-C6NO	Stop pin
			4G2-JNT-ADAPTOR-KIT-C6	2 set screws
	8 dia. joint Adaptor kit	NC	4G2-JNT-ADAPTOR-KIT-C8NC	
		NO	4G2-JNT-ADAPTOR-KIT-C8NO	
			4G2-JNT-ADAPTOR-KIT-C8	

Plate kit

Model	Kit model no.	Set part
4G2	4G2-PLATE-KIT	Plate, gasket and 2 set screws

Female thread adaptor kit

Model	Kit model no.	Set part
4G2	4G2-FML-ADAPTOR-KIT	Female thread adaptor, gasket and 2 set screws

Individual cautions

⚠ Caution — Surge suppressor

A surge suppressor of a solenoid valve is used to protect the output contact to drive solenoid valve. Protection for other peripheral devices can not be expected, rather, surge will adversely affect to these devices, i.e., the surge generated by other devices could be absorbed, causing damage such as burning, etc. So, care must be taken for following matters.

(1) A surge suppressor limits surge voltage of solenoid valve that attains hundreds of volt to the voltage level as low as an output contact withstands.It is not enough depending on the output circuit, leading to destroy and malfunction.Check the availability beforehand according to surge clamping level, withstanding pressure/circuit structure of output components or delay of return.If required, furthermore, induct another surge countermeasures.Also, a solenoid valve with surge suppressor can reduce the backward voltage surge created when turning off to the level on the following table.

Specifications voltage	Backward voltage value at OFF
DC12V	Approximate 27V
DC24V	Approximate 47V

(2) If other components or solenoid valves are connected to solenoid valves in parallel, backward voltage surge that will form when a solenoid valve turn off applies to these components.Even if of a solenoid valve with surge suppressor for 24VDC, in some model, surge voltage will attain several decades of negative voltage, and this reversed polarity voltage may destroy and malfunction other components connected in parallel.Parallel connection to components affected by reversed polarity voltage (e.g.: LED indicator light) must be avoided.Also, if several solenoid valves are driven in parallel, surge of another solenoid valve will be admitted into a surge suppressor of a solenoid valve with surge suppressor, and some values of Ampere may lead to burning of surge suppressor.Even if several solenoid valves with surge suppressor are driven in parallel, surge current may concentrate into the surge suppressor whose limit voltage is the lowest, and leading to burning in the same manner.Even if the solenoid valves of same model no. are used, in the worst case, leading to damage by burning, since clamping voltage of surge suppressor may vary.

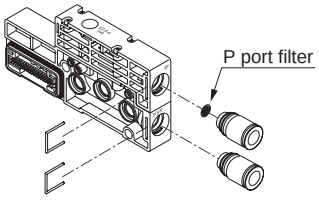
(3) In many cases, a surge suppressor integrated in solenoid valve is short-circuited, if damaged by over voltage/overcurrent other than the solenoid valve.Therefore, an output turns on after damaged, and large electric current flows, in the worst case, causing output circuit and solenoid valves damage/fire.Do not energize while the products failure.Also, install over current protection circuit on power supply and drive circuits not to flow large electric current, and use a power supply with over current protection.

⚠ Caution — AC100V specifications

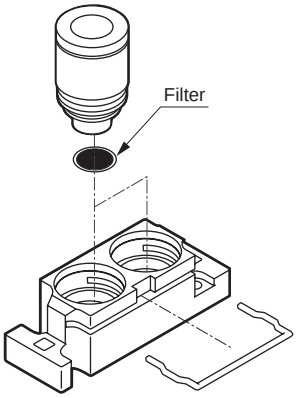
In AC100V specifications, an all wave rectified bridge is integrated.
When using SSR for a solenoid valve ON/OFF, some types may cause return failure of a solenoid valve.
If SSR is selected, care must be taken. (Consult with relay and PLC makers.)

⚠ Caution — Port filter

Port filter is to prevent foreign material from entraining and to prevent a problem in a valve.Read warning and cautions on Intro 4 to 10 very well, then install and adjust the products. because compressed air quality is not improved.
Do not remove port filter forcibly, nor do not hold it.
A filter may be deformed to cause a problem.
Also, if there are foreign matters and foreign materials on the filter surface, flash the filter or remove them by tweezes, etc.



Example of integrating P port filter (standard)



Example of integrating A/B port filter option

Pneumatic components:

Warning/cautions to secure safety

Always read this section before starting use.

Individual cautions

Caution — Serial transmission slave unit

Design

- If communication is abnormal, slave unit will be under the following conditions
  (1) All input signals will turn OFF.
  (2) All output signals will turn OFF. (However when a slave unit has an output mode setting switch, the setting condition is applied.)

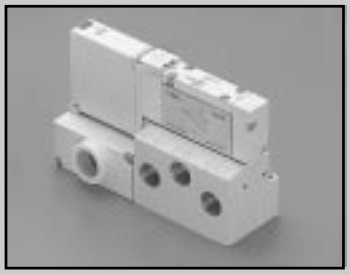
When wiring

- When installing or wiring the product, disconnect an external power supply before starting work, or may cause electric shock/damage.
- Check rated voltage and terminals array of the product, then wire properly. If different rated power supply is connected, or If improper line is connected, causing fire and failure.
- Tighten water proof connector and terminals screws within the specified torque range. Loose tightening may cause fire and faulty operation.
- Do not bend and pull communication cable and power supply cables connecting to the unit forcibly.
- For communication cable, the specified cable must be used. Also, separate the cable from power line and high voltage lines.
- Do not use the product while submerged.

Start-up/maintenance

- Do not touch terminals and connectors during energizing, or creating electric shock.
- When cleaning and retightening the product, disconnect the external power supply.
- Do not disassemble and modify this product. Failure and faulty operation may be caused.

MEMO



Discrete
Sub-base porting
W4GB2 Series

●Applicable cylinder bore size: 20 to 80 dia.

Common specifications

Descriptions	W4GB2
Working fluid	Compressed air
Actuation	Pilot operated
Valve structure	Soft spool valve
Min. working pressure MPa	0.2
Max. working pressure MPa	0.7
Withstanding pressure Mpa	1.05
Ambient temperature ℃	-5 to 55
Fluid temperature ℃	5 to 55
Manual override	Non-locking/locking common type (standard)
Lubrication Note 1	Not required
Protective structure Note 2	Dust/jet-proof (IP65)
Vibration/impact m/s²	49 or less/294 or less
Working environment	Not subject to corrosive gas, etc.

Note 1: Turbine oil Class 1 ISOVG32 must be used for lubrication.
Too much lubrication may cause unstable operation.
Note 2: IP65 (IEC60529 [IEC529: 1989-11]) standard test method
Refer to Intro 11 for details.
References MPa is used for pressure unit. The conversion ratio is 1MPa=10.1972kgf/cm².

Electrical specifications

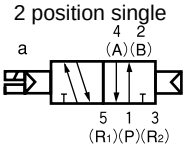
Descriptions		W4GB2
Rated voltage V	DC	12 and 24
	AC	100
Rated voltage fluctuation range		±10%
Holding current A	DC24V	0.025
	DC12V	0.050
	AC100V	0.012
Power consumption W	DC24V	0.6
Note 3	DC12V	0.6
Apparent power VA	AC100V	1.2
Heat resistance class		B

Note 3: Surge suppressor/indicator is provided as standard.

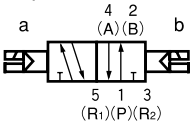
JIS symbol

-5 port valve

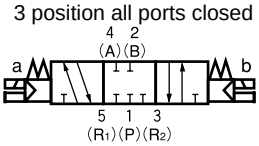
2 position single



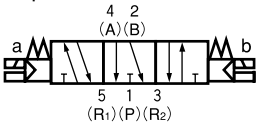
2 position double



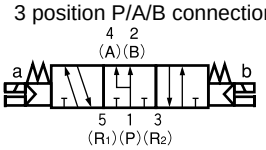
3 position all ports closed



3 position A/B/R connection



3 position P/A/B connection



Individual specifications

Descriptions		W4GB2
Port size	Port A/B	Rc1/4
	Port P/R	Rc1/4

Descriptions		W4GB2	
		P-> A/B	A/B-> R
Ef. sec. area mm²	2 position	13	13
	All ports closed	11	11
	ABR connection	11	13
	PAB connection	15	11

Descriptions			W4GB2	
			When the power is ON	When the power is OFF
Response time ms	2 position	Single	22	24
		Double	26	-
	3 position	ABR connection	25	35

The response time is a value where supply pressure 0.5MPa, 20℃ and not lubricated. It may vary per pressure and oil quality.

Descriptions			W4GB2	
			Gland	I/O connector
Mass g	2 position	Single	351	409
		Double	367	424
	3 position	All ports closed	374	431

How to order

-Discrete

W4GB2 | 1 | 0 | - | 08 | - | R1 | H | - | 3

-Discrete sub plate only

W4GB2 | - | SP | - | 08 | - | R1 | F

Sub-plate

Ⓐ Solenoid position Classification

Ⓑ Port size

Ⓒ Electric connection
Refer to Intro 3 for the circuit diagram (solenoid valve inside).

Ⓓ Option

Ⓔ Voltage

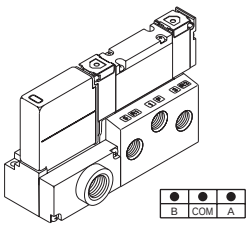
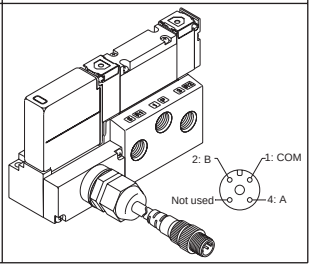
Symbol	Content	Discrete	Discrete sub plate only
Ⓐ Solenoid position			
1	2 position single	●	
2	2 position double	●	
3	3 position all ports closed	●	
4	3 position ABR connection	●	
5	3 position PAB connection	●	
Ⓑ Port size			
08	Rc1/4	●	●
Ⓒ Electric connection (light and surge suppressor provided as standard)			
Blank	Gland (cable clamp attached)	●	●
R1	I/O connector (500mm) (custom order)	●	●
Ⓓ Option			
Blank	No option	●	●
M	Non-locking manual override Note 1	●	
M7	Manual override with OFF function Note 1	●	
H	With check valve Note 2	●	
A	Ozone/coolant proof	●	
F	P/A/B port filter integrated	●	●
Ⓔ Voltage			
1	AC100V (rectified bridge integrated)	●	
3	DC24V	●	
4	DC12V	●	

Note on selection guide

Note 1: Non-locking manual override (M) and manual override with OFF function (M7) can not be selected together.

Note 2: For 3 position all ports closed and PAB connection, check valve specifications (H) are not available.

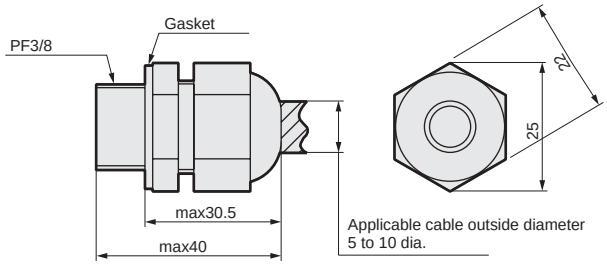
Electric connection

Name	Gland	I/O connector
Symbol	Blank	R1
Shape / Terminal Layout		

Kit model no. for gland type

-Cable clamp (with gasket)

Model no.	Descriptions
W4G-BMS-038GP	Used for dust/jet-proof protection of cable



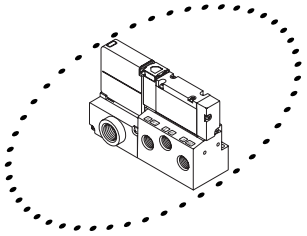
(Reference value)

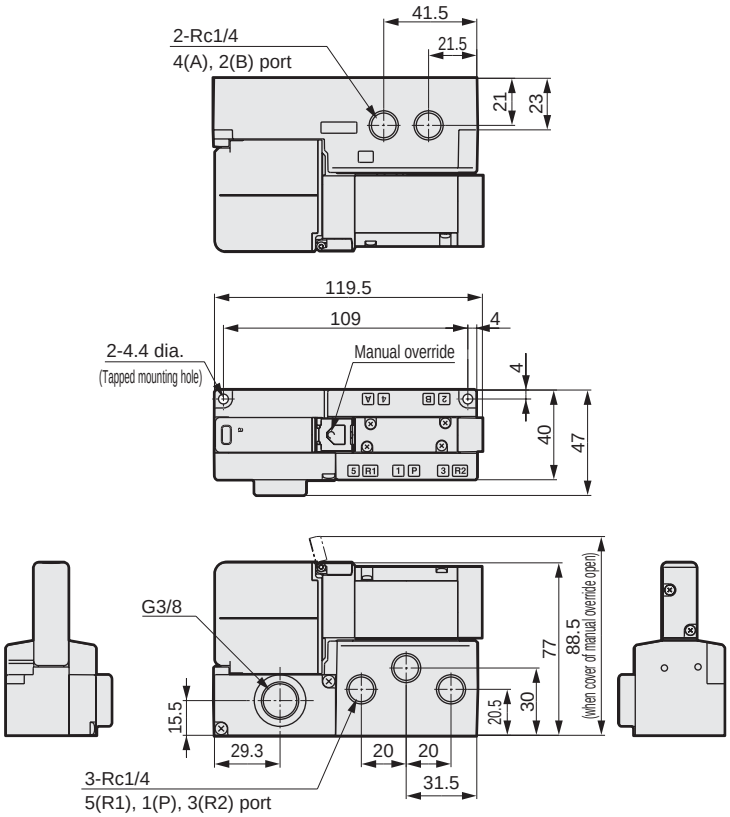
Body tightening torque	2.0 to 2.5 N·m
Cable clamp tightening torque	1.5 to 2.0 N·m

Discrete: dimensions

W4GB210

●Gland (blank)

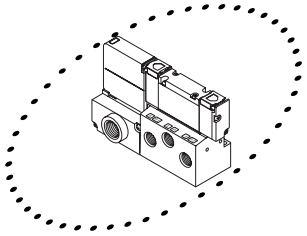


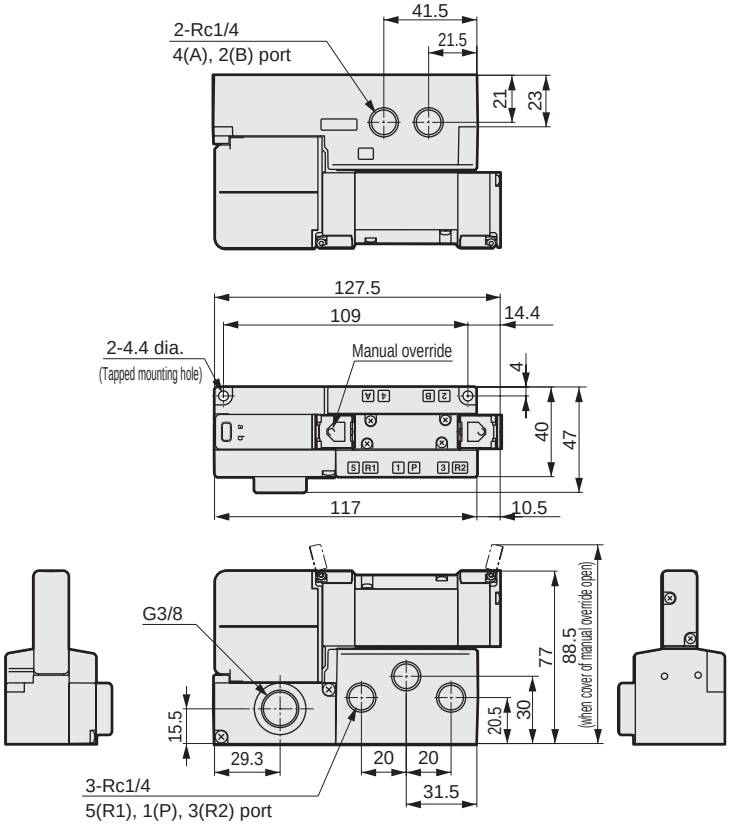


Note:Refer to P.4 for I/O connector (R1).

W4GB220

●Gland (blank)

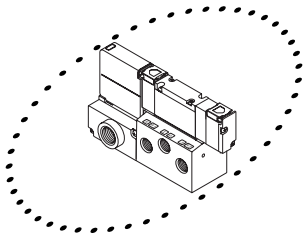


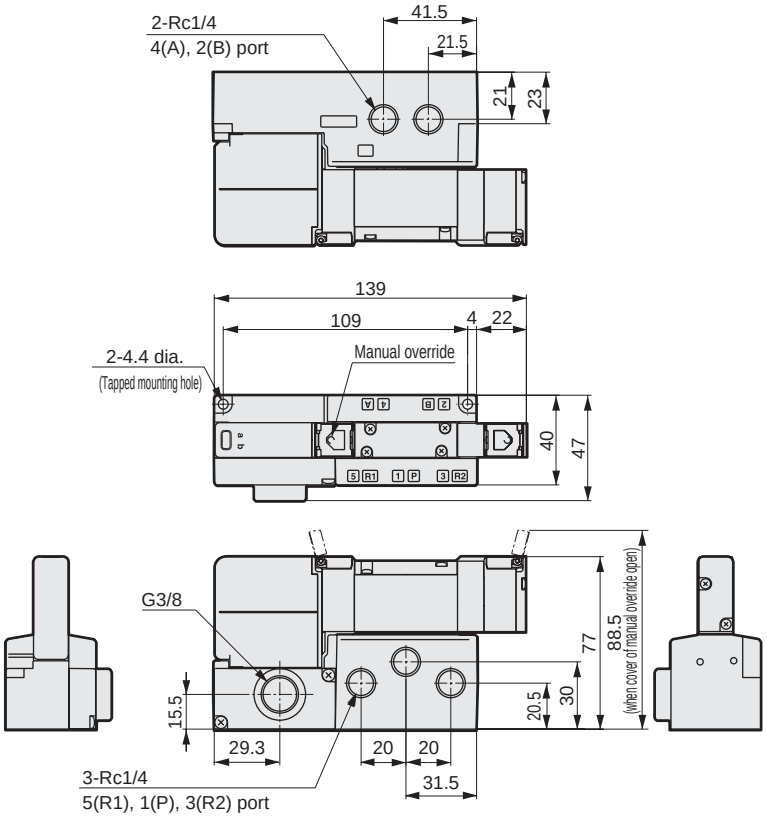


Discrete: dimensions

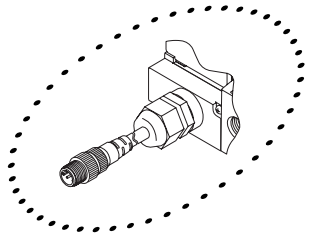
W4GB2$^{3}_{4}_{5}$0

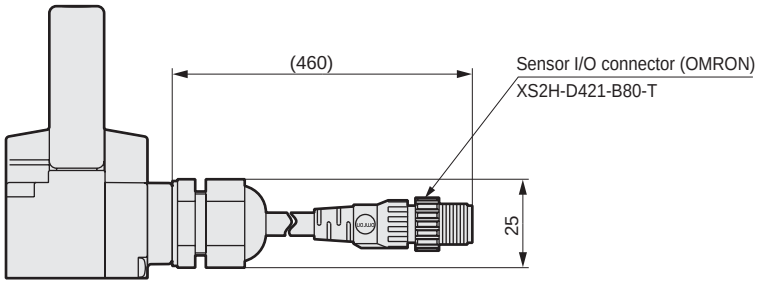
● Gland (blank)

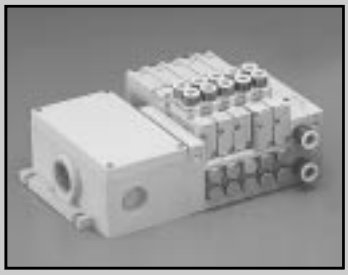




● I/O connector (R1)







Reduced wiring manifold
Body porting
MW$^{3}_{4}$GA2-T1/2/3/5/8 Series

● Applicable cylinder bore size: 20 to 80 dia.

Manifold common specifications

Descriptions		MW3GA2/MW4GA2
Manifold type		Block manifold
Air supply/exhaust method		Common supply/common exhaust (check valve integrated)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (pilot exhaust check valve integrated)
	External pilot	Main valve/pilot valve individual exhaust
Piping direction		Valve top direction
Working fluid		Compressed air
Actuation		Pilot operated
Valve structure		Soft spool valve
Min. working pressure MPa		0.2
Max. working pressure MPa		0.7
Withstanding pressure Mpa		1.05
Ambient temperature ℃		-5 to 55
Fluid temperature ℃		5 to 55
Manual override		Non-locking/locking common type (standard)
Lubrication Note 1		Not required
Protective structure Note 2		Dust/jet-proof (IP65) Note 3
Vibration/impact m/s^2		49 or less/294 or less
Working environment		Not subject to corrosive gas, etc.

Electrical specifications

Descriptions		MW3GA2/MW4GA2
Rated voltage V	DC	12 and 24
	AC	100
Rated voltage fluctuation range		±10%
Holding current A	DC24V	0.025
	DC12V	0.050
	AC100V	0.012
Power consumption W	DC24V	0.6
Note 4	DC12V	0.6
Apparent power VA Note 5	AC100V	1.2
Heat resistance class		B

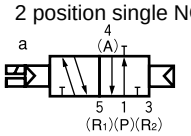
Note 4: Surge suppressor/indicator is provided as standard.
Note 5: In multi connector/D sub-connector/flat cable connector joint specifications, AC100 V is not available.
In serial transmission connection specifications, AC100V and DC12 V are not available.

Note 1: Turbine oil Class 1 ISOVG32 must be used for lubrication. Too much lubrication may cause unstable operation.
Note 2: IP65 (IEC60529 [IEC529: 1989-11]) standard test method Refer to Intro 11 for details.
Note 3: Protective structure of D sub-connector (T30) and flat cable (T5*) is dust proof. Water drip/oil, etc., must not be sprayed during operation.
References MPa is used for pressure unit. The conversion ratio is 1MPa=10.1972kgf/cm^2.

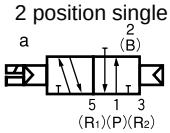
JIS symbol

-3 port valve

2 position single NC type

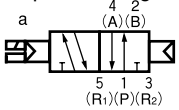


2 position single NO type

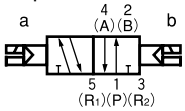


-5 port valve

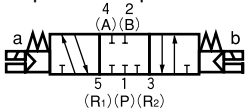
2 position single



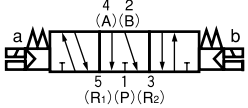
2 position double



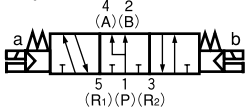
3 position all ports closed



3 position A/B/R connection



3 position P/A/B connection



Individual specifications

Descriptions		MW3GA2/MW4GA2									
		T10	T20	T30	T51	T53	T8G1 T8D1	T8G2 T8D2	T8G7 T8D7	T8MA	T8M6
Max. station no.	Standard wiring	18	-	18	18	18	16	16	16	4	8
	Double wiring	9	8	12	9	12	8	8	8	2	4
Maximum solenoid number		18	16	24	18	24	16	32	16	4	8
Port size	Port A/B	Push-in joint 4, 6, 8 dia. and Rc1/8									
	Port P/R	Push-in joint 8 and 10 dia.									

Refer to P.9 for mass.

Descriptions			MW3GA2/MW4GA2	
			P-> A/B	A/B-> R
Ef. sec. area mm^2	Port size	Port A/B	Push-in joint 8 dia.	
	2 position		11	9(12)
	All ports closed		10	10
	ABR connection		10	9(12)
	PAB connection		12	10

* Effective sectional area of 2 position and ABR connection is the value when a check valve integrated.
* The value in ( ) will apply when any check valve will not be installed.

Descriptions			MW3GA2/MW4GA2	
			When the power is ON	When the power is OFF
Response time ms	2 position	Single	22	24
		Double	26	-
	3 position	ABR connection	25	35

The response time is the value where supply pressure 0.5MPa, 20℃ and not lubricated. The value may vary per pressure and oil quality.

Reduced wiring specifications

Descriptions	T10	T20	T30	T51	T53
Type	Common gland M3 screw type	Multi connector	D sub-connector	20P Flat cable connector Without power supply terminal	26P Flat cable connector Without power supply terminal
Connection connector	-	HIROSE ELECTRIC CO. LTD. RM21WTP-20S 20 pins	MIL standards D sub-connector 25 pins	MIL-C-83563 standards Pressure welding socket 20 pins	MIL-C-83563 standards Pressure welding socket 26 pins

Serial transmission slave unit specifications (refer to P.78 for the applicable PLC table.)

Descriptions \ Network name		CC-Link(Ver1.10)			DeviceNet *1			AS-i(Ver2.0)	
Slave unit model no.		T8G1	T8G2	T8G7	T8D1	T8D2	T8D7	T8MA	T8M6
Communication speed		156K/625K/2.5M/5M/10Mbps			125K/250K/500Kbps			167Kbps	
Power supply voltage	Unit side	DC24V ±10%			DC24V ±10%			DC30V ±2%	
	Valve side	DC24V +10% and -5%			DC24V +10% and -5%			DC24V +10% and -5%	
	Communication side	-			DC11 to 25V			-	
Current consumption	Unit side	60mA or less	100mA or less	75mA or less *2	70mA or less	90mA or less	80mA or less *2	60mA or less *2	90mA or less *2
	Valve side	15mA or less (when all points are turned off.)			15mA or less (when all points are turned off.)			15mA or less (when all points are turned off.)	
	Communication side	-			50mA or less			-	
Input no./output no.		0/16	0/32	16/16	0/16	0/32	16/16	4/4 *3	8/8 *4
Operating indication		Power supply/communication state			Power supply/communication state/valve power supply			Power supply/communication state	
Others		-			Contact us about an EDS file. *5			Profile: 7 and F *6	

*1 Other DeviceNet conformed networks (CompoBus/D and DLNK, etc.) are also available.
*2 If power supply of input block is common with unit power supply, the following expression must be calculated.
T8G7: (unit side current consumption) = 60mA + (35mA x input block no.) + (sum of internal current consumption of connected sensors)
T8D7: (unit side current consumption) = 80mA + (35mA x input block no.) + (sum of internal current consumption of connected sensors)
T8MA: (unit side current consumption) = 60mA + (35mA x input block no.) + (sum of internal current consumption of connected sensors)
T8M6: (unit side current consumption) = 90mA + (35mA x input block no.) + (sum of internal current consumption of connected sensors)
However, select a sensor as unit side current consumption be 600mA or less (for T8G7 and T8D7), or 250mA or less (for T8MA and T8M6).
*3: If of slave unit (T8MA) of 4 points input/4 points output type, all outputs are used for a valve.
*4: Slave unit (T8M6) of 8 points input/8 points output type requires two pieces of address.
*5: EDS file: a text file contains parameters to communicate with each bland of masters.
*6: Profile: when communicating with master, meaning of I/O data and parameters of a slave unit is defined. (Defined in AS-i specifications.).

I/O block specifications

-Input block

Model no. / Descriptions	NW4GA2-IN-N-K	NW4GA2-IN-N-B	NW4GA2-IN-P-K	NW4GA2-IN-P-B
Input no.	4 points			
Rated input voltage	DC24V			
Rated input current	7mA			
ON voltage	DC15V and over (between each input terminal and V)		DC15V and over (between each input terminal and G)	
OFF voltage/OFF current	DC5V or less (between each input terminal and V)/1.5mA or less		DC5V or less (between each input terminal and G)/1.5mA or less	
Input type	Sink type		Source type	
Power supply	Common with unit power supply	External power supply	Common with unit power supply	External power supply
Operating indication	Power supply/input status			

*1 Refer to P.55 for model no.

-Output block

Model no. / Descriptions	NW4GA2-OUT-N-B	NW4GA2-OUT-P-B
Output no.	4 points	
Rated voltage	DC24V	
Max. load current	1A/1 point (3A/common)	
Recovery voltage	1.5V or less	
Output type	Sink type	Source type
Protective circuit	Over current protection/reverse connection protection	
Fuse	Power supply for external load : DC24V and 5A (can be replaced)	
Operating indication	Power supply/output state	

*1 Refer to P.55 for model no.

How to order

Common gland/multi connector/D sub-connector/flat cable connector

-Manifold model no.

MW4GA2 1 0 - C8 — T10 W H D - 5 - 3

-Discrete valve block with solenoid valve

NW4GA2 1 0 - C8 - ○ W H — 3

-Discrete solenoid valve

W4GA2 1 9 - C8 — H — 3

Model no. / Solenoid position / Port size Note 1 / Electric connection Note 2 / Reduced wiring / Terminal/connector pin Array / Option / Mount type / Station no. / Voltage

Symbol	Descriptions	Model no. Manifold 3 port MW3GA2	Manifold 5 port MW4GA2	With solenoid valve Discrete block 3 port NW3GA2	With solenoid valve Discrete block 5 port NW4GA2	Discrete solenoid 3 port W3GA2	Discrete solenoid 5 port W4GA2
A Solenoid position							
1	2 position single		●		●		●
2	2 position double		●		●		●
3	3 position all ports closed		●		●		●
4	3 position ABR connection		●		●		●
5	3 position PAB connection		●		●		●
1	2 position single solenoid, normally closed	●		●		●	
11	2 position single solenoid, normally open	●		●		●	
8	Mix manifold	●	●				
B Port size (port A/B)							
C4	4 dia. push-in joint	●	●	●	●	●	●
C6	6 dia. push-in joint	●	●	●	●	●	●
C8	8 dia. push-in joint	●	●	●	●	●	●
CX	Push-in joint mix	●	●				
06	Rc1/8	●	●	●	●	●	●
C Electric connection							
Blank	Connector relay circuit board specifications for DC			●	●		
2 to 8	Refer to P. 50 for cable length for AC.			●	●		
D Reduced wiring (light and surge suppressor provided as standard)							
T10	Common gland (M3 screw) left specifications	●	●				
T20	Multi connector left specifications Note 3	●	●				
T30	D sub-connector left specifications Note 3	●	●				
T51	20-pin flat cable connector (no power supply terminal) left spec. Note 3	●	●				
T53	26-pin flat cable connector (no power supply terminal) left spec. Note 3	●	●				
E Terminal/connector pin array							
Blank	Standard wiring Note 4	●	●	●	●		
W	Double wiring Note 4	●	●	●	●		
F Option							
Blank	No option	●	●	●	●	●	●
M	Non-locking manual override Note 5	●	●	●	●	●	●
M7	Manual override with OFF function Note 5	●	●	●	●	●	●
H	With check valve (standard) Note 6	●	●	●	●	●	●
K	External pilot	●	●				
A	Ozone/coolant proof	●	●	●	●	●	●
F	A/B port filter integrated Note 7	●	●	●	●	●	●
G Mount type							
Blank	Direct mount type	●	●				
D	DIN rail mount type	●	●				
H Station no.							
2 to 18	2 stations to 18 stations (The specifications may vary depended with the reduced wiring specifications. Individual specifications (P.5) must be checked.)	●	●				
I Voltage							
1	AC100V (rectified bridge integrated)	●	●	●	●	●	●
3	DC24V	●	●	●	●	●	●
4	DC12V	●	●	●	●	●	●

section shows not available.

Note on selection guide

Always fill out [manifold specification sheet].

Note 1: A port size of port P/R must be specified in the supply and exhaust block section.

Note 2: If change of AC specifications will be implemented, select a valve block with masking plate as a reserved block.

Note 3: In multi connector (T20) D sub-connector (T30) and flat cable (T5*) connection specifications, AC100 V is not available.

Note 4: Blank: a valve is wired according to a type of installed valve.
W: wiring for double solenoid will apply regardless of type of valve mounted.
However, for multi connector T20, no standard wiring is available.

Note 5: Non-locking manual override (M) and manual override with OFF function (M7) can not be selected together.

Note 6: For 3 position all ports closed and PAB connection, no check valve specifications (H) are available.

Note 7: Port P has an integrated filter.

How to order

Serial transmission

-Manifold model no.

MW4GA2 1 0 - C8 — T8G1 W H D - 5 - 3

-Discrete valve block with solenoid valve

NW4GA2 1 0 - C8 - ○ W H — 3

-Discrete solenoid valve

W4GA2 1 9 - C8 — H — 3

Model no.

A Solenoid position

B Port size
Note 1

C Electric connection

D Reduced wiring
Refer to Intro 3 for the circuit diagram (solenoid valve inside).

E Terminal/connector pin Array

F Option

G Mount type

H Station no.

I Voltage

Table 1 [I/O block combination table]

Symbol	Combination of layout and station no. of I/O block						
Y10						IN	Transmission block side
Y20					IN	IN	
Y30				IN	IN	IN	
Y40			IN	IN	IN	IN	
Y01						OUT	
Y02					OUT	OUT	
Y03				OUT	OUT	OUT	
Y04			OUT	OUT	OUT	OUT	
Y11					OUT	IN	
Y21				OUT	IN	IN	
Y31			OUT	IN	IN	IN	
Y41		OUT	IN	IN	IN	IN	
Y12				OUT	OUT	IN	
Y22			OUT	OUT	IN	IN	
Y32		OUT	OUT	IN	IN	IN	
Y42	OUT	OUT	IN	IN	IN	IN	

*1: How to read table
E.g.) Y11 is a combination of an input block (4 points) and an output block (4 points).
2: Refer to P.75 for details of I/O point number compatible with I/O number of wiring method T8.

Symbol	Content		Model no.					
			Manifold		With solenoid valve Discrete block		Discrete solenoid	
			3 port	5 port	3 port	5 port	3 port	5 port
			MW3GA2	MW4GA2	NW3GA2	NW4GA2	W3GA2	W4GA2
A Solenoid position								
1	2 position single			●		●		●
2	2 position double			●		●		●
3	3 position all ports closed			●		●		●
4	3 position ABR connection			●		●		●
5	3 position PAB connection			●		●		●
1	2 position single solenoid, normally closed		●		●		●	
11	2 position single solenoid, normally open		●		●		●	
8	Mix manifold		●	●				
B Port size (port A/B)								
C4	4 dia. push-in joint		●	●	●	●	●	●
C6	6 dia. push-in joint		●	●	●	●	●	●
C8	8 dia. push-in joint		●	●	●	●	●	●
CX	Push-in joint mix		●	●				
06	Rc1/8		●	●	●	●	●	●
C Electric connection								
Blank	Connector relay circuit board specifications for DC				●	●		
D Reduced wiring (light and surge suppressor provided as standard)								
T8G1	Serial transmission CC-Link	16 points output	●	●				
T8G2		32 points output	●	●				
T8G7		16 points input/16 points output	●	●				
T8D1	Serial transmission DeviceNet	16 points output	●	●				
T8D2		32 points output	●	●				
T8D7		16 points input/16 points output	●	●				
T8MA	Serial transmission AS-i	4 points input/4 points output	●	●				
T8M6		8 points input/8 points output	●	●				
E Terminal/connector pin array								
Blank	Standard wiring	Note 2	●	●	●	●		
W	Double wiring	Note 2	●	●	●	●		
F Option								
Blank	No option		●	●	●	●	●	●
M	Non-locking manual override	Note 3	●	●	●	●	●	●
M7	Manual override with OFF function	Note 3	●	●	●	●	●	●
H	With check valve (standard)	Note 4	●	●	●	●	●	●
K	External pilot		●	●				
A	Ozone/coolant proof		●	●	●	●	●	●
F	A/B port filter integrated	Note 5	●	●	●	●	●	●
Y**	I/O block (Specify I/O block combination number in ** according to Table 1[I/O block combination table].	Note 6	●	●				
G Mount type								
Blank	Direct mount type		●	●				
D	DIN rail mount type		●	●				
H Station no.								
2 to 16	2 stations to 16 stations (The specifications may vary depended with the reduced wiring specifications. Individual specifications (P.5) must be checked.)		●	●				
I Voltage								
3	DC24V Note 7		●	●	●	●	●	●

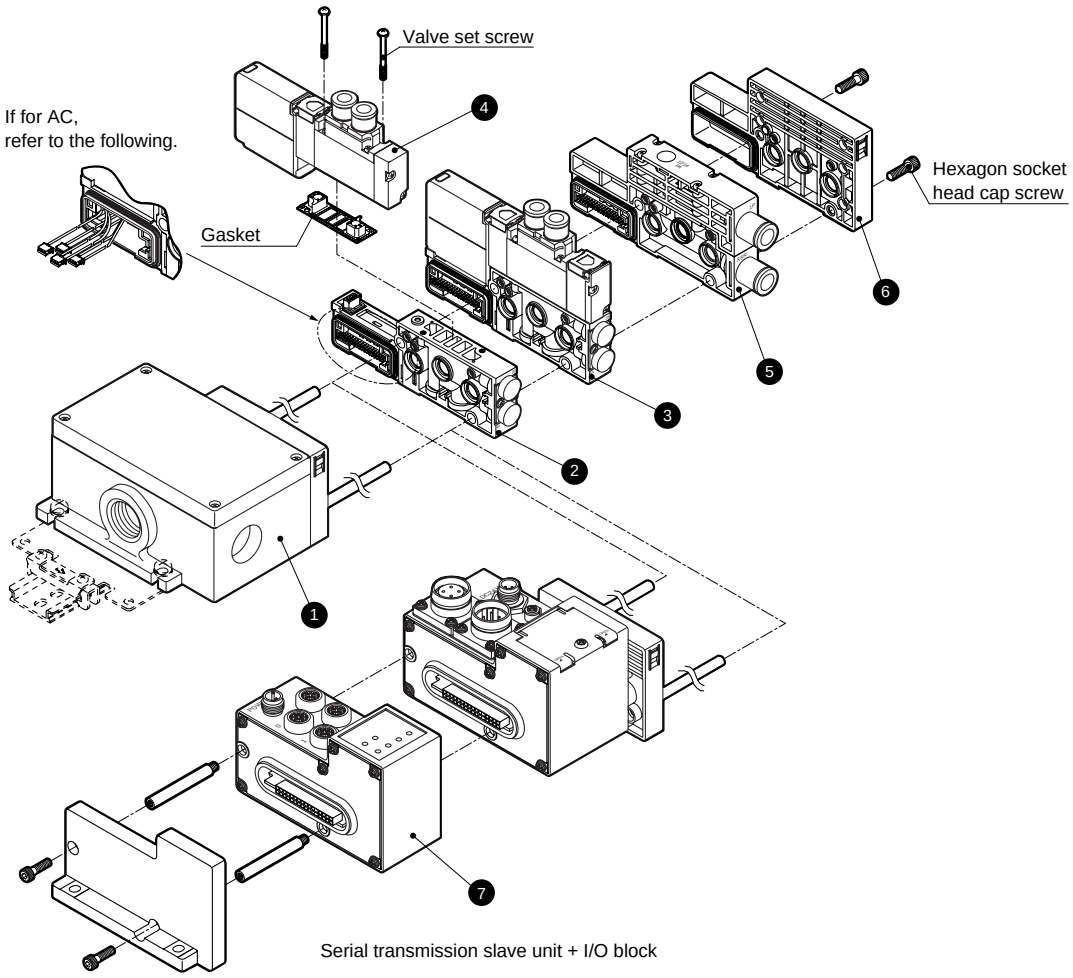
section shows not available.

Note on selection guide

Always fill out [manifold specification sheet].

Note 1: A port size of port P/R must be specified in the supply and exhaust block section.
Note 2: Blank: it is wired according to a type of installed valve.
W: wiring for all double solenoid will apply regardless of type of valve mounted.
Note 3: Non-locking manual override (M) and manual override with OFF function (M7) can not be selected together.
Note 4: For 3 position all ports closed and PAB connection, no check valve specifications (H) are available.
Note 5: Port P has an integrated filter.
Note 6: Indicate I/O format of I/O block (sink/sauce) and type of power supply (slave unit common/external) on the manifold specification sheet (P.91).
Note 7: In serial transmission connection specifications, AC100V and DC12 V are not available.

Manifold components explanation and parts list



Main parts list (refer to P.47 to 60 for details.)

No.	Component name	Model no. (e.g.)	No.	Component name	Model no. (e.g.)
1	Wiring block	NW4GA2-T10	5	Supply and exhaust block	NW4G2-Q-10
2	Discrete valve block	NW4GA2-V1	6	End block R	NW4G2-ER
3	Discrete valve block with solenoid valve	NW4GA220-C8-H-3	7	I/O block	NW4GA2-IN-N-B
4	Discrete solenoid valve	W4GA219-C8-H-3			

Mass (DC)

NW4GA2

(g)

Block type		Mass	Block type		Mass
Valve block with solenoid valve	NW3GA210	181	Valve block with masking plate	NW4GA2-MP$^{S}_{D}$	102
	NW3GA2110	181	Wiring block (serial transmission slave unit)	NW4GA2-T8*	430
	NW4GA210	186	I/O block	NW4GA2-$^{IN}_{OUT}$-$^{N}_{P}$-$^{K}_{B}$	220
	NW4GA220	202			
	NW4GA2$^{3}_{4}$0	209			

Common

(g)

Block type		Mass	Block type		Mass
Supply and exhaust block	NW4G2-Q-*	137	Wiring block	NW4G2-T10	423
	NW4G2-QK-*	140		NW4G2-T20	490
	NW4G2-QZ-*	137		NW4G2-T30	370
	NW4G2-QKZ-*	143		NW4G2-T5*	367
End block	NW4G2-ER	91			
	NW4G2-EXR	96			

Repair parts and related parts list

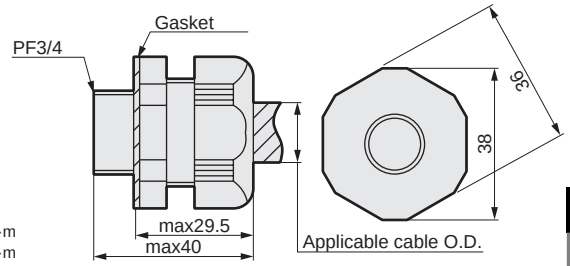
No.	Parts name		Model no.
-	Cartridge type push-in joint and related parts	4 dia. axial type	4G2-JOINT-C4
		6 dia. axial type	4G2-JOINT-C6
		8 dia. axial type	4G2-JOINT-C8
		Plug cartridge	4G2-JOINT-CPG

Kit for wiring block T10

-Cable clamp

Model no.	Applicable cable O.D.	Descriptions
W4G-SCL-18A	14.5 to 16.5 dia.	Used for dust/jet-proof protection of cable
W4G-SCL-18B	16.5 to 18.5 dia.	

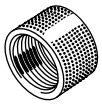
(Reference value)
Body tightening torque 4.0 to 4.5 N·m
Cable clamp tightening torque 3.0 to 3.5 N·m



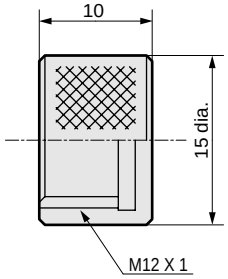
Part for I/O block

-Water proof cap

Model no.	Descriptions
W4G-XSZ-11	If the same power supply is shared with serial transmission slave unit, this is used for jet-proof protection of power supply connector.



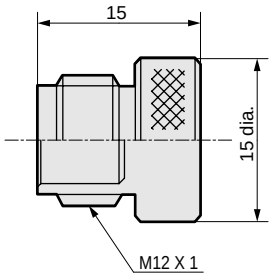
(Reference value)
Tightening torque 0.4 to 0.5 N·m



-Water proof plug

Model no.	Descriptions
W4G-XSZ-12	This is used for jet-proof protection of signal connector not used

(Reference value)
Tightening torque 0.4 to 0.5 N·m

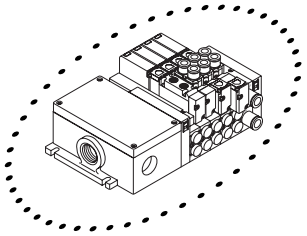


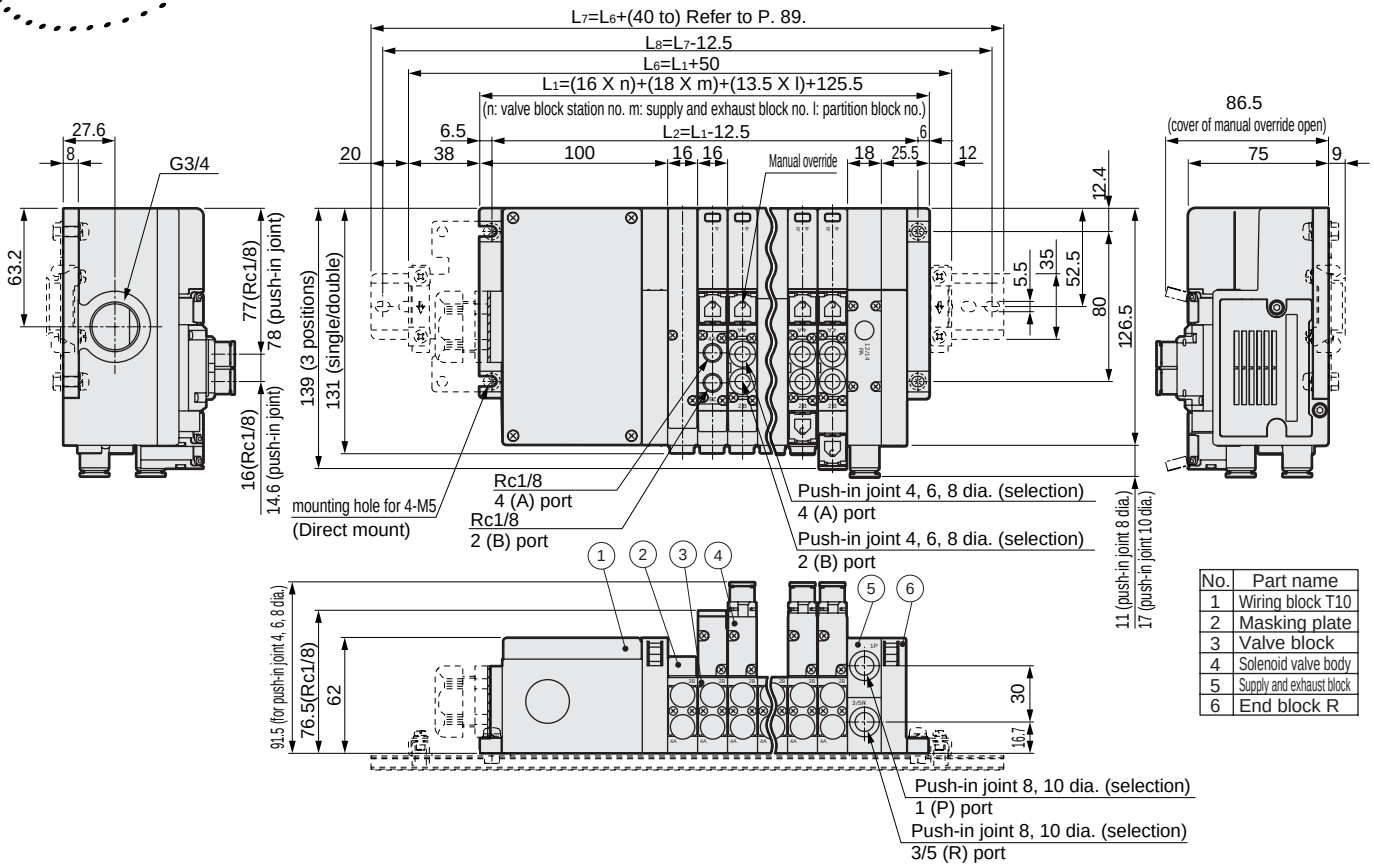
Body porting: Dimensions

Unit mm

MW4GA2

● Common gland (T10)

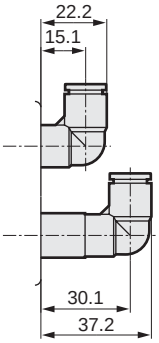




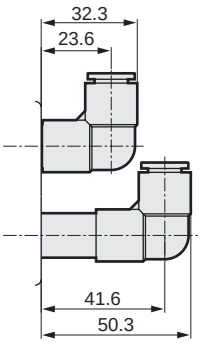
No.	Part name
1	Wiring block T10
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



● 10 dia. (CL10)

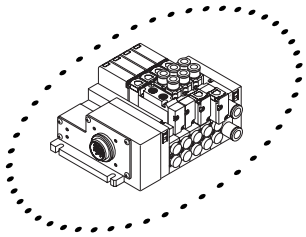


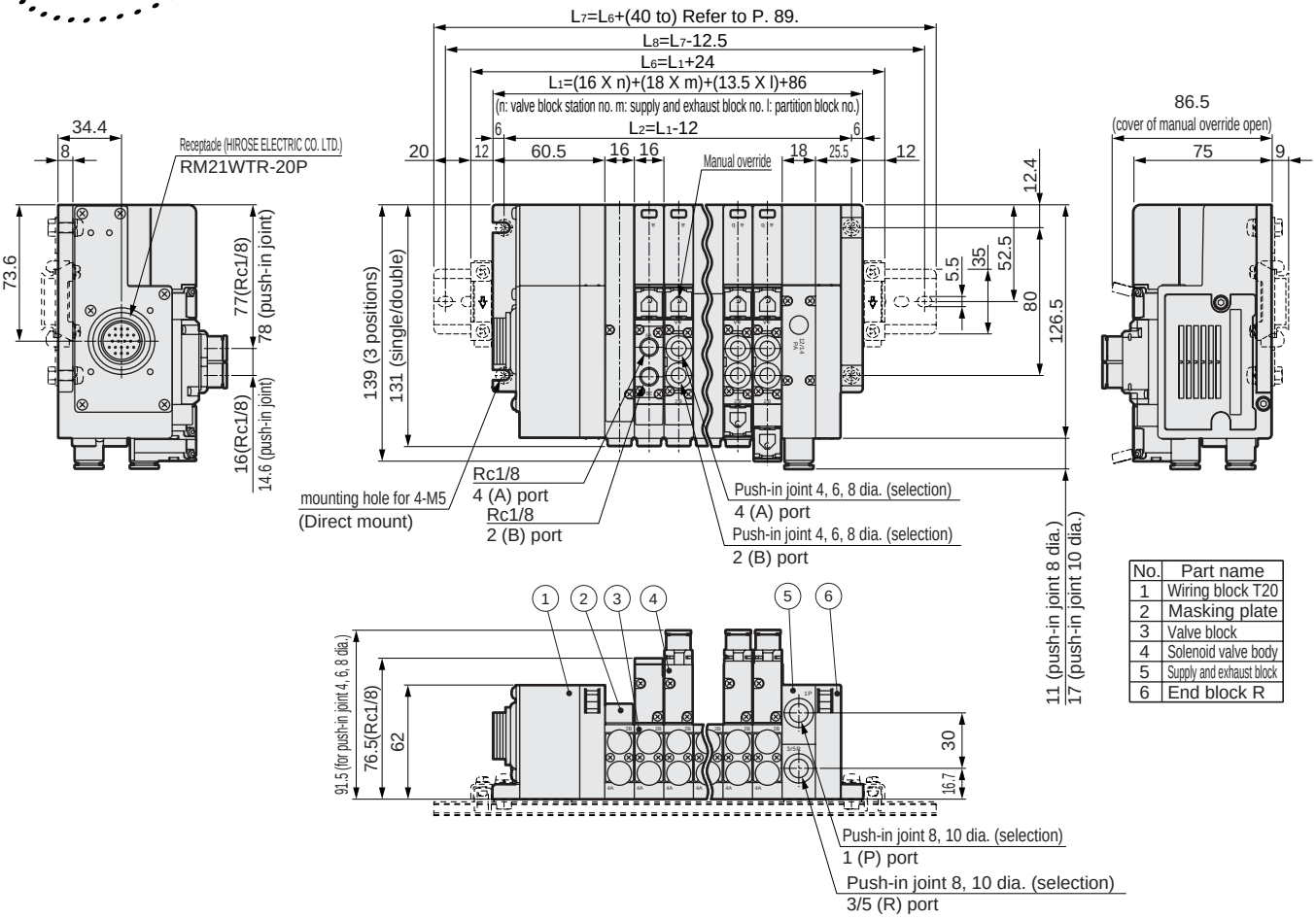
Body porting: Dimensions

Unit mm

MW4GA2

● Multi-connector (T20)

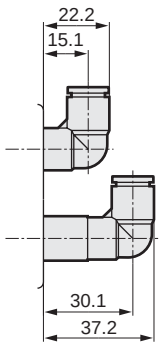




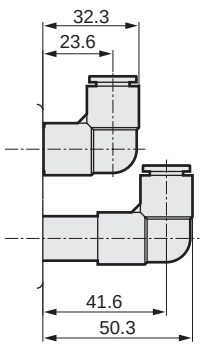
No.	Part name
1	Wiring block T20
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



● 10 dia. (CL10)

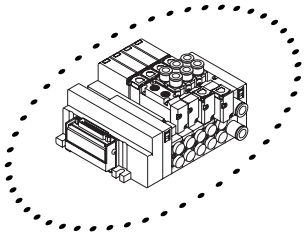


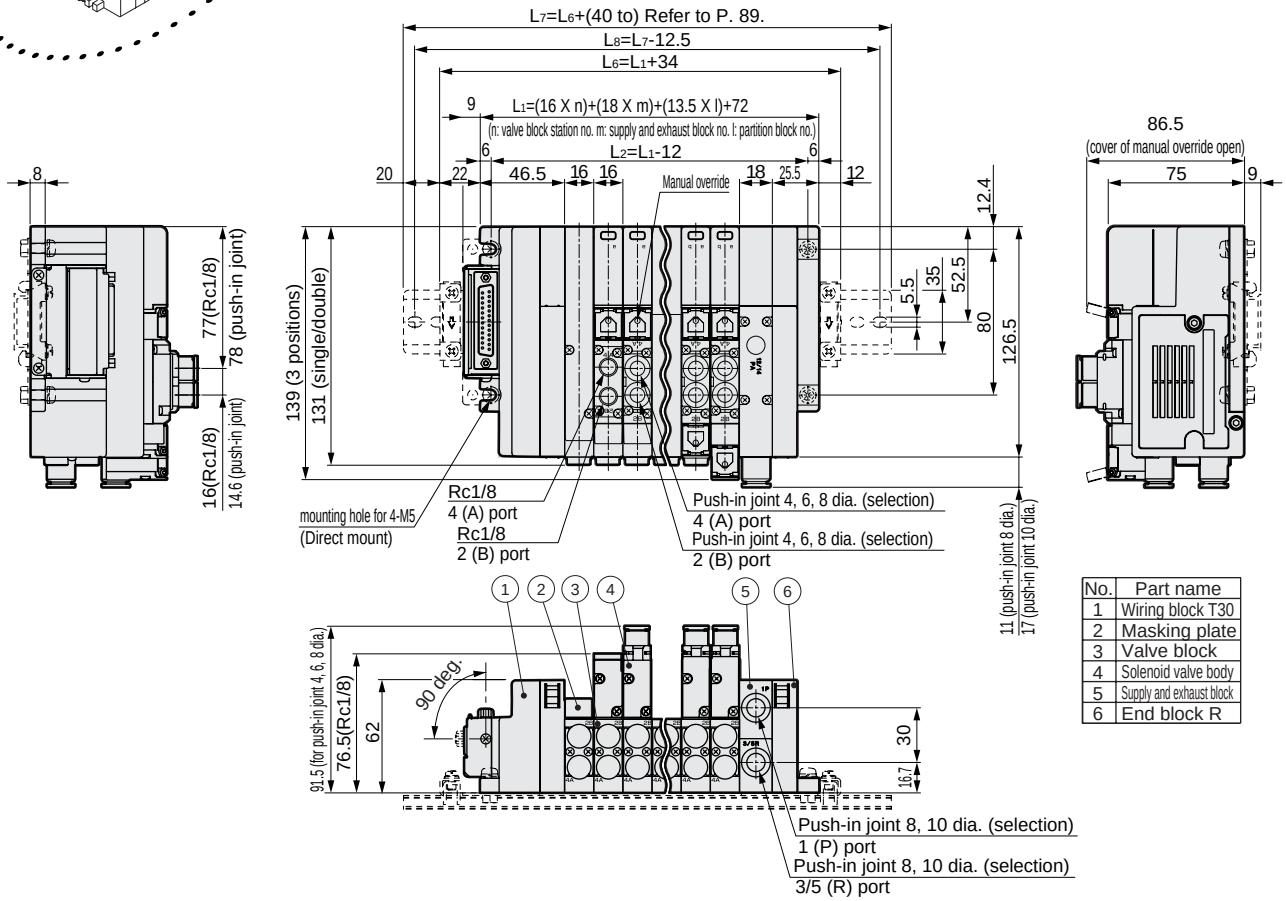
Body porting: Dimensions

Unit mm

MW4GA2

● D sub-connector (T30)

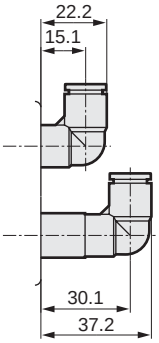




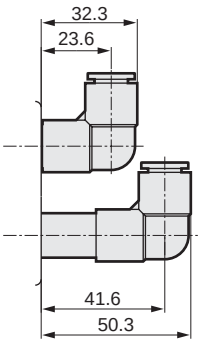
No.	Part name
1	Wiring block T30
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



● 10 dia. (CL10)



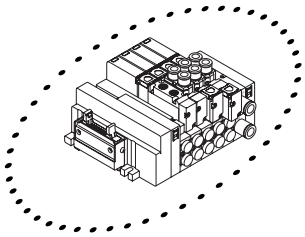
Body porting: Dimensions

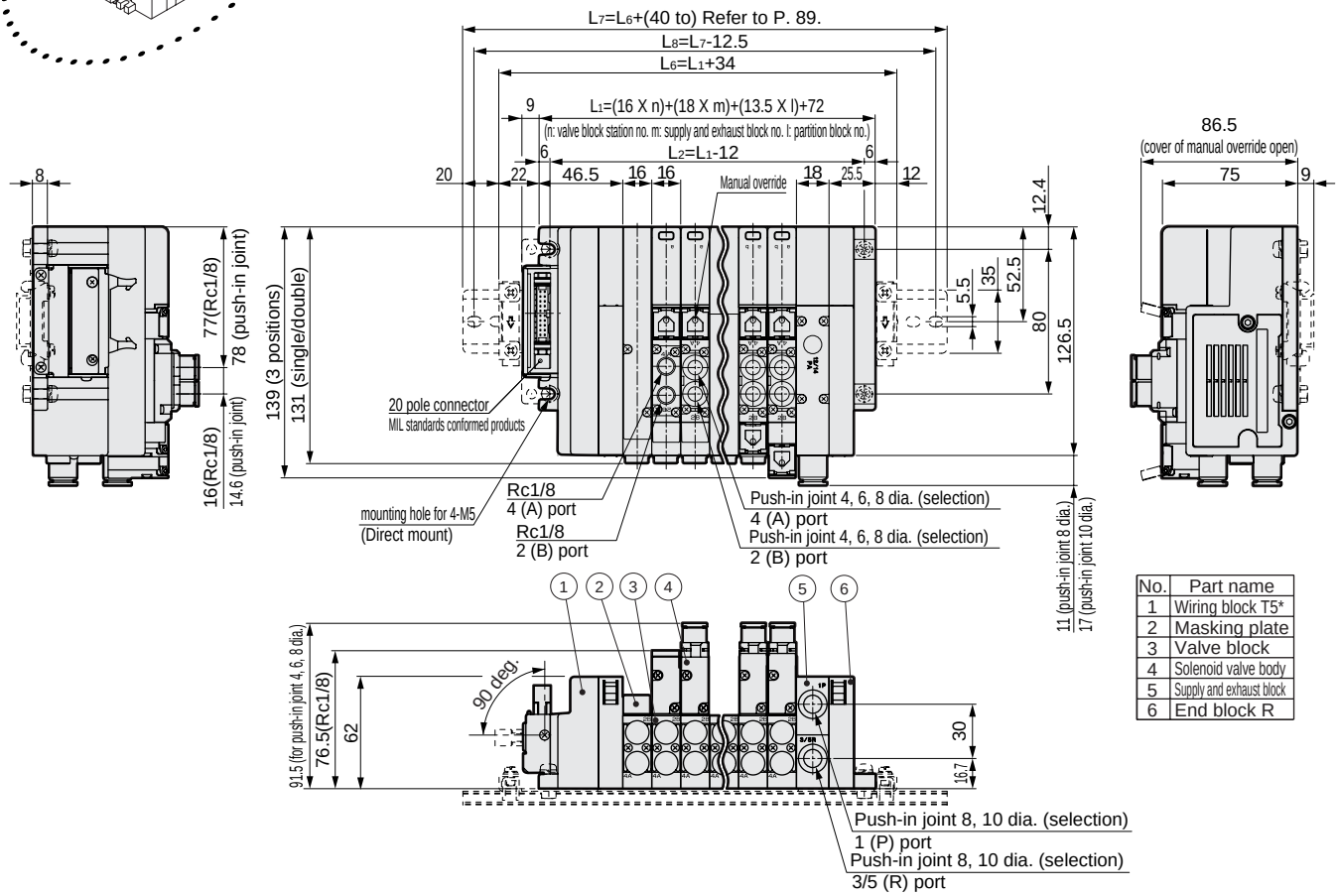
Unit mm

MW4GA2

● Flat cable connector (T5*)

* This drawing shows T51.
For flat cable connector, T53 is available.
Dimensions are same as T51.

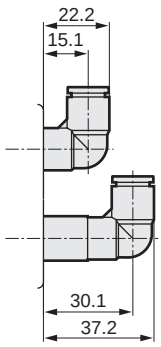




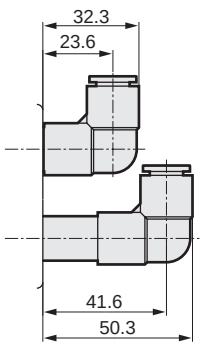
No.	Part name
1	Wiring block T5*
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



● 10 dia. (CL10)

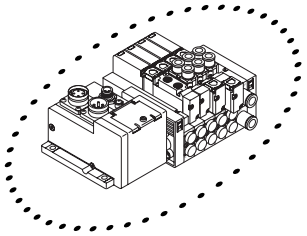


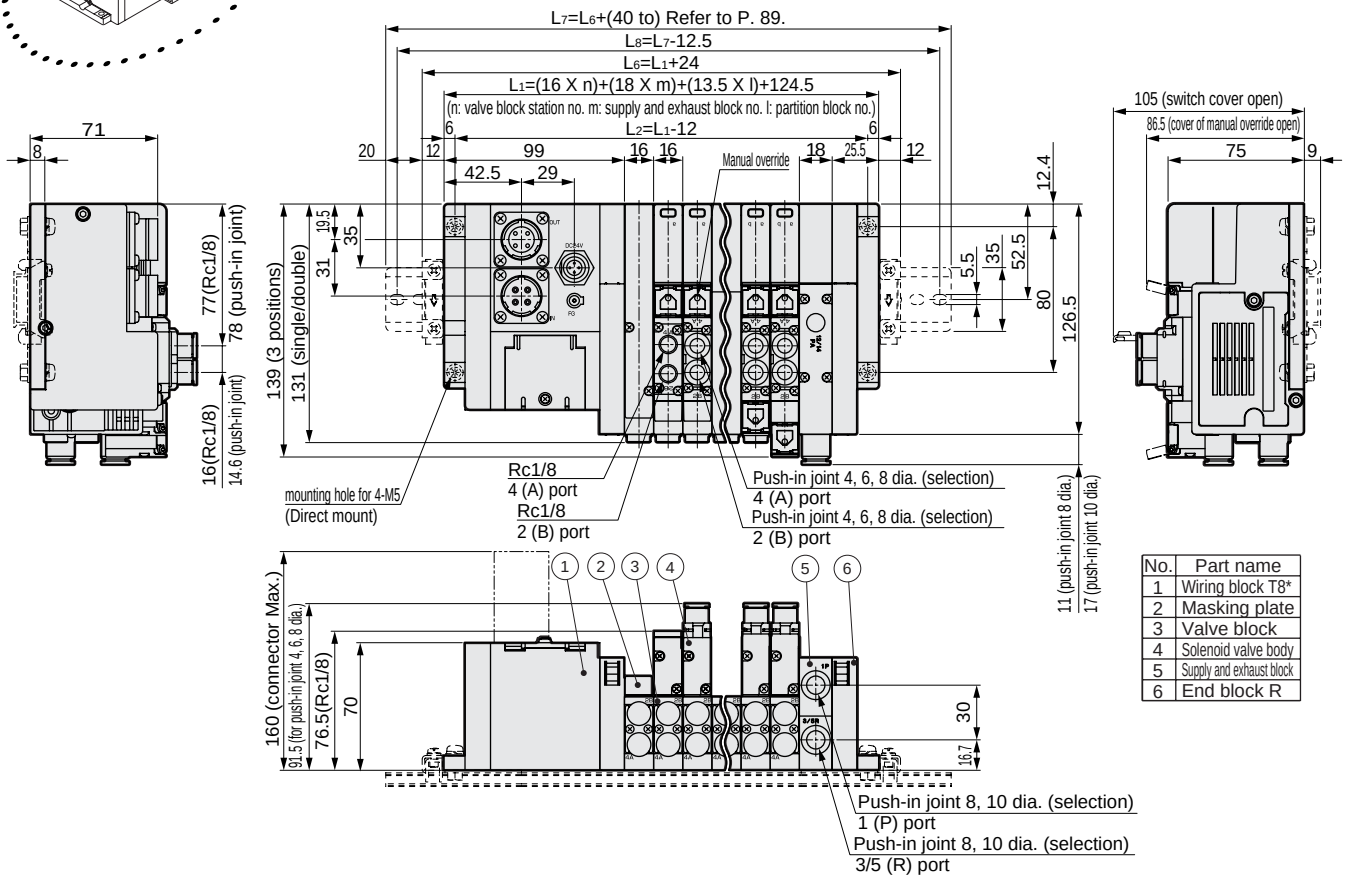
Body porting: Dimensions

Unit mm

MW4GA2

● Serial transmission CC-Link (T8G*)

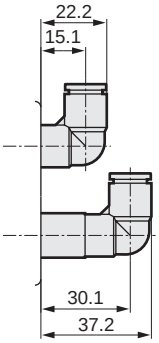




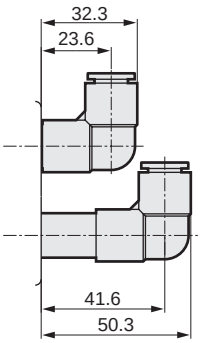
No.	Part name
1	Wiring block T8*
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



● 10 dia. (CL10)

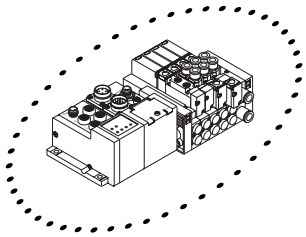


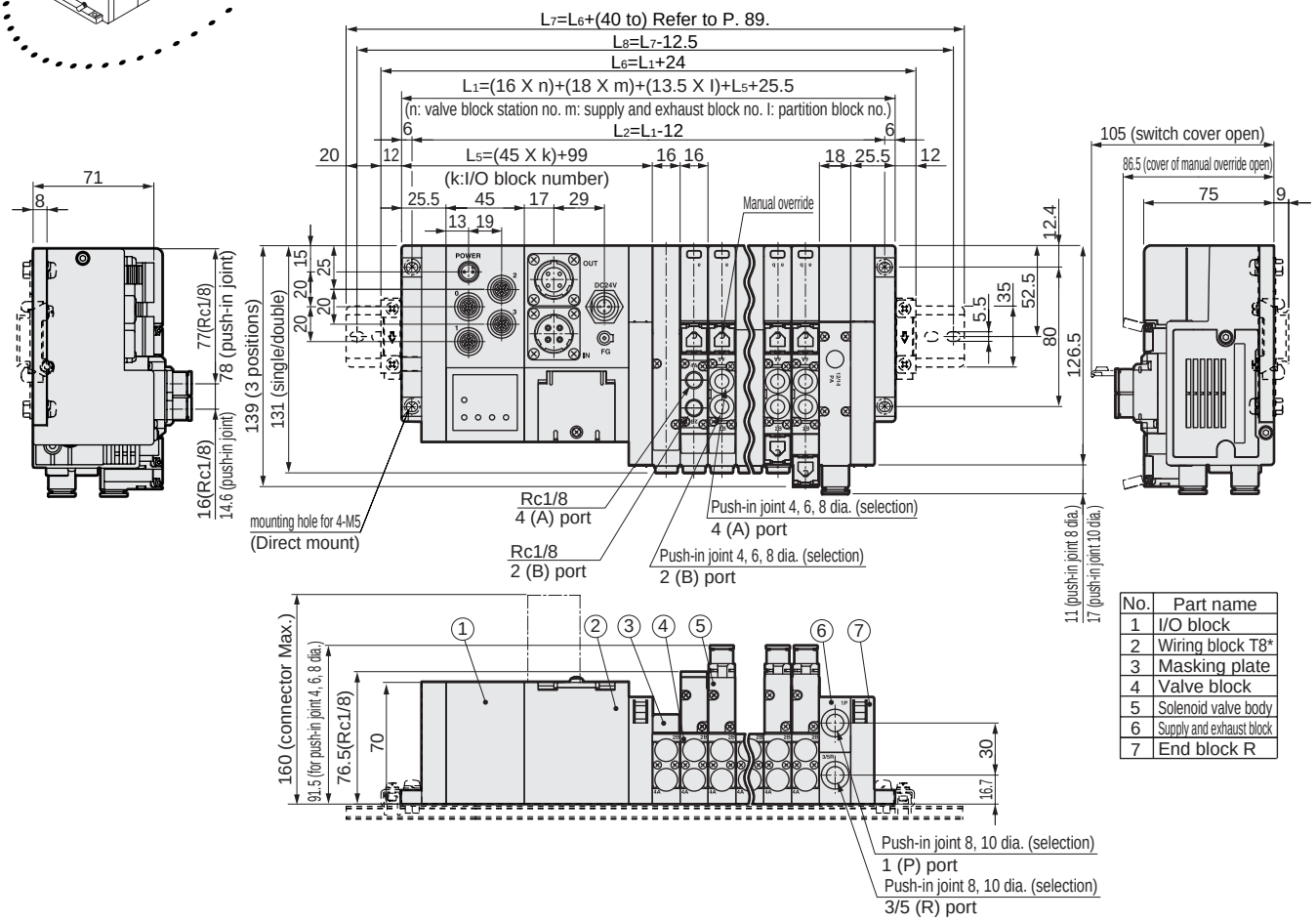
Body porting: Dimensions

Unit mm

MW4GA2

● Serial transmission CC-Link (T8G*)+I/O block

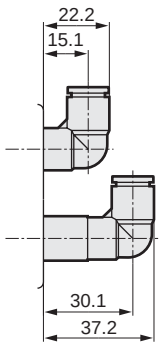




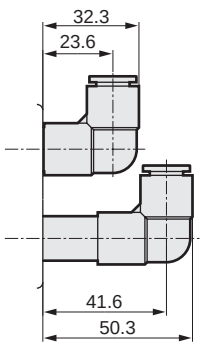
No.	Part name
1	I/O block
2	Wiring block T8*
3	Masking plate
4	Valve block
5	Solenoid valve body
6	Supply and exhaust block
7	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



● 10 dia. (CL10)

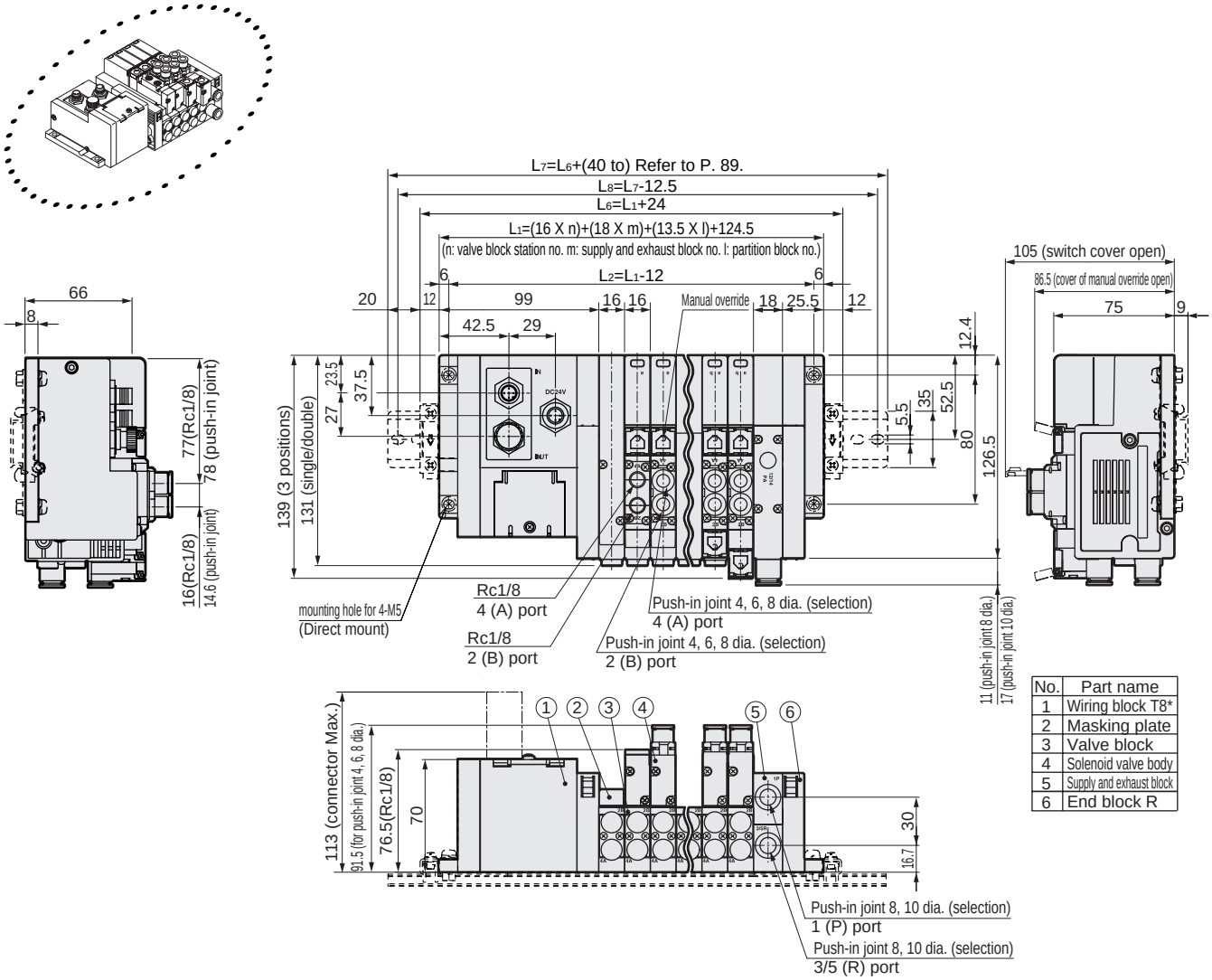


Body porting: Dimensions

Unit mm

MW4GA2

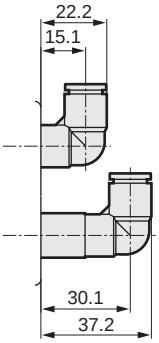
● Serial transmission DeviceNet (T8D*)



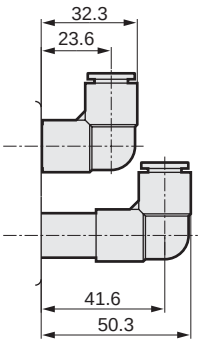
No.	Part name
1	Wiring block T8*
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



● 10 dia. (CL10)

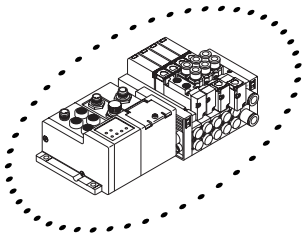


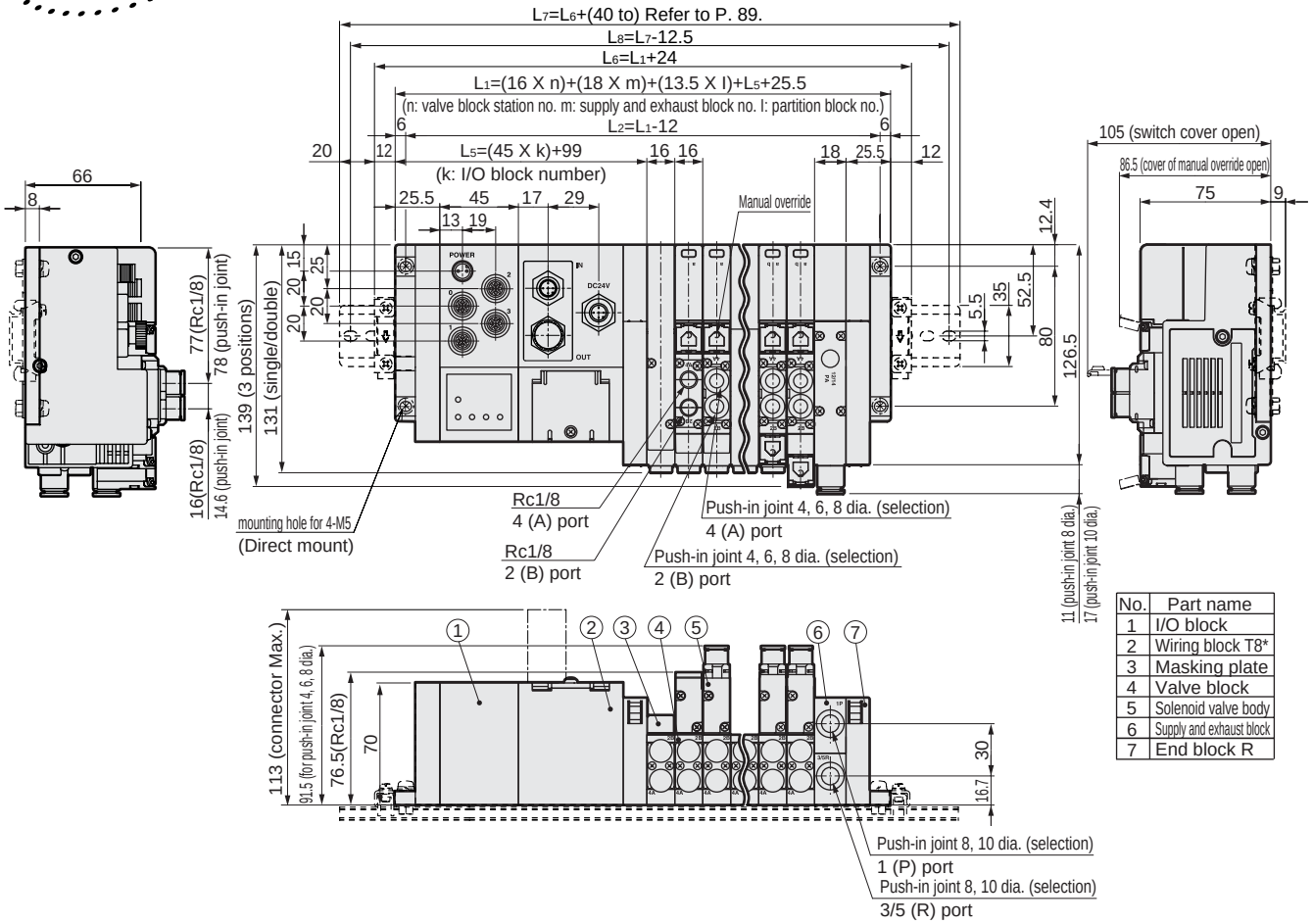
Body porting: Dimensions

Unit mm

MW4GA2

● Serial transmission slave unit DeviceNet (T8D*)+I/O block

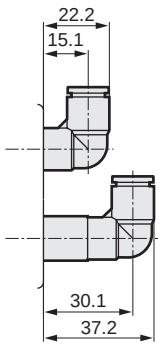




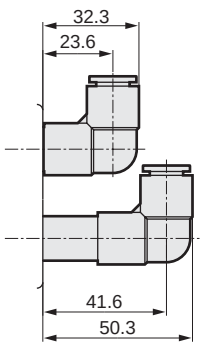
No.	Part name
1	I/O block
2	Wiring block T8*
3	Masking plate
4	Valve block
5	Solenoid valve body
6	Supply and exhaust block
7	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



● 10 dia. (CL10)

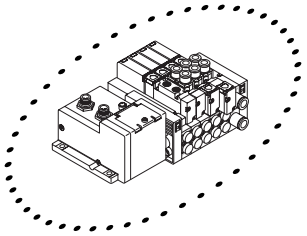


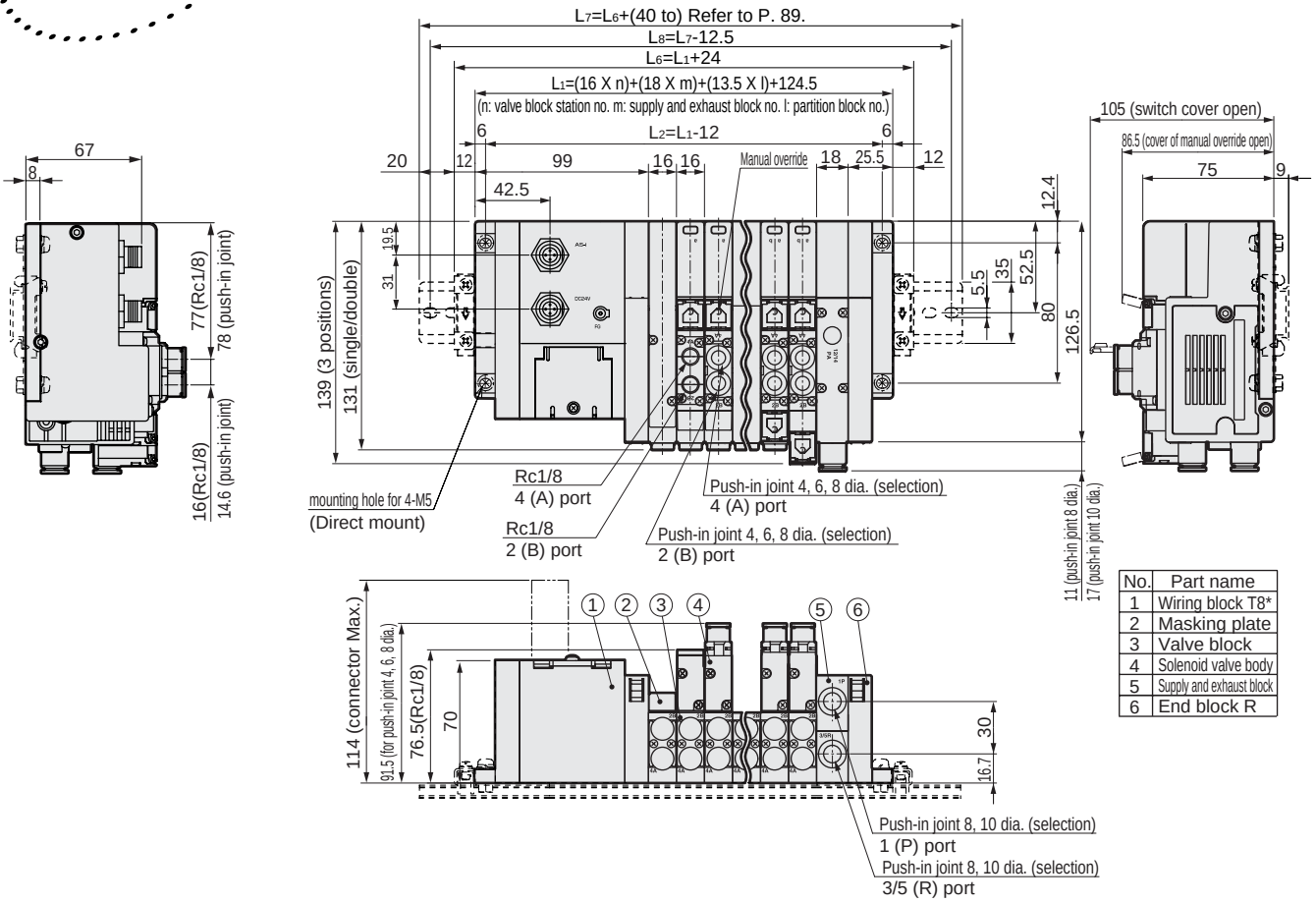
Body porting: Dimensions

Unit mm

MW4GA2

● Serial transmission AS-i (T8M*)

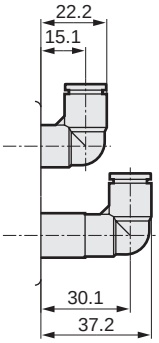




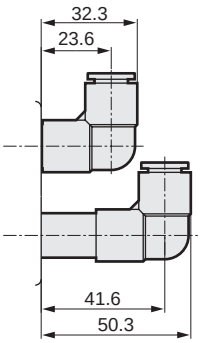
No.	Part name
1	Wiring block T8*
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



● 10 dia. (CL10)

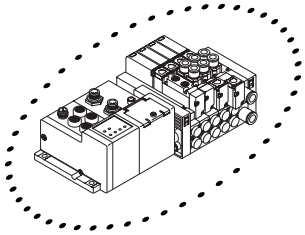


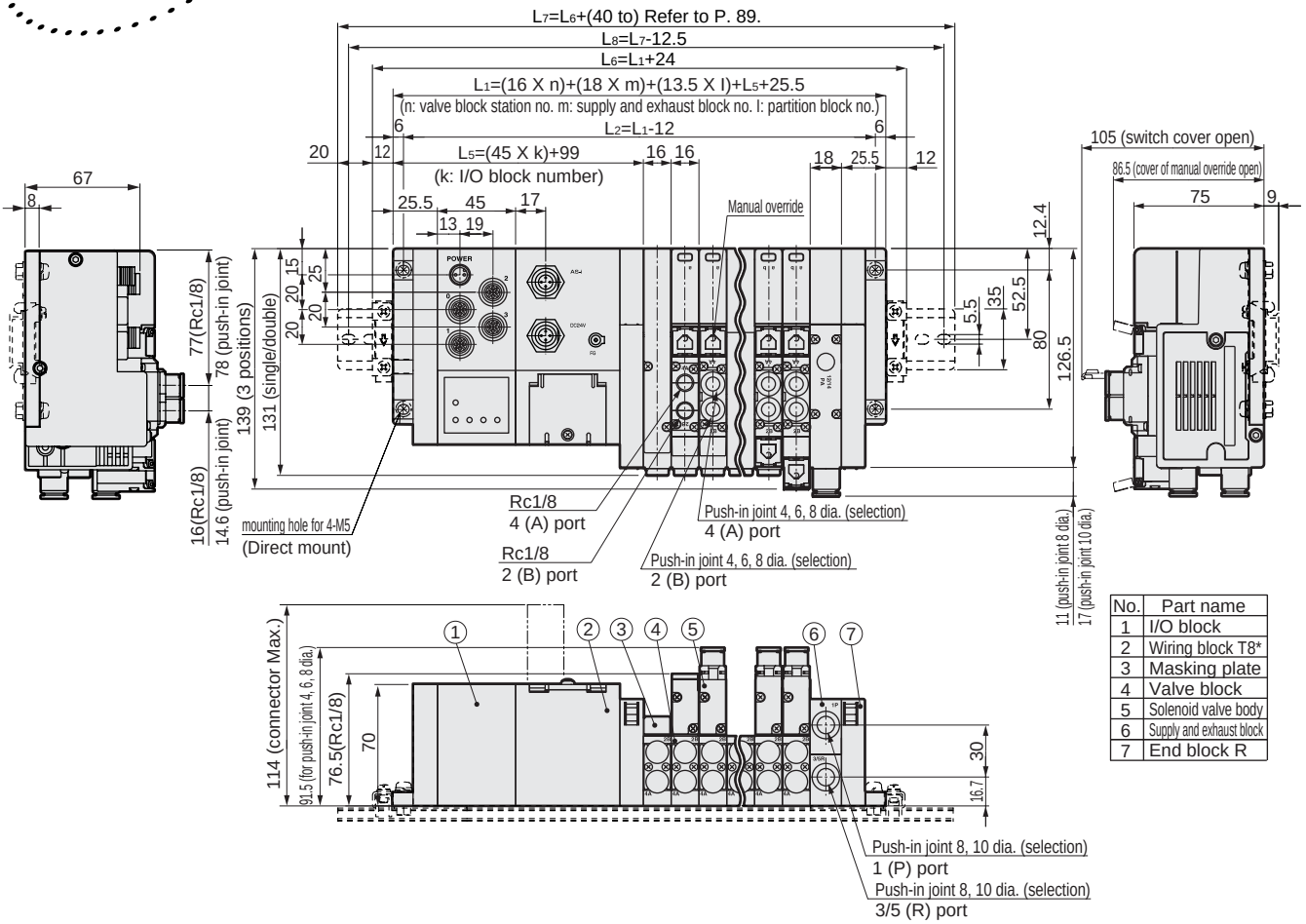
Body porting: Dimensions

Unit mm

MW4GA2

● Serial transmission AS-i (T8M*)+I/O block

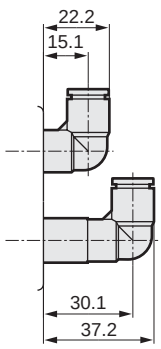




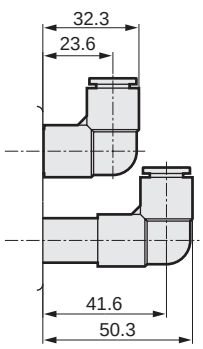
No.	Part name
1	I/O block
2	Wiring block T8*
3	Masking plate
4	Valve block
5	Solenoid valve body
6	Supply and exhaust block
7	End block R

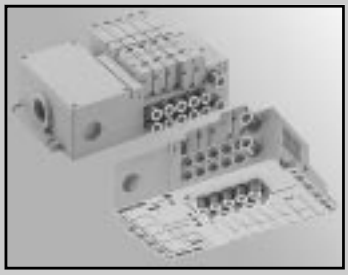
● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



● 10 dia. (CL10)





Reduced wiring manifold
Sub-base side porting/back porting
MW4G$^{B}_{Z}$2-T1/2/3/5/8 Series

●Applicable cylinder bore size: 20 to 80 dia.

Manifold common specifications

Descriptions		MW4GB2	MW4GZ2
Manifold type		Block manifold	
Air supply/exhaust method		Common supply/common exhaust (check valve integrated)	
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (pilot exhaust check valve integrated)	
	External pilot	Main valve/pilot valve individual exhaust	
Piping direction		Sub-base side porting	Sub-base bottom porting
Working fluid		Compressed air	
Actuation		Pilot operated	
Valve structure		Soft spool valve	
Min. working pressure MPa		0.2	
Max. working pressure MPa		0.7	
Withstanding pressure Mpa		1.05	
Ambient temperature ℃		-5 to 55	
Fluid temperature ℃		5 to 55	
Manual override		Non-locking/locking common type (standard)	
Lubrication Note 1		Not required	
Protective structure Note 2		Dust/jet-proof (IP65) Note 3	
Vibration/impact m/s²		49 or less/294 or less	
Working environment		Not subject to corrosive gas, etc.	

Note 1: Turbine oil Class 1 ISOVG32 must be used for lubrication. Too much lubrication may cause unstable operation.
Note 2: IP65 (IEC60529 [IEC529: 1989-11]) standard test method Refer to Intro 11 for details.
Note 3: Protective structure of D sub-connector (T30) and flat cable (T5*) is dust proof. Water drip/oil, etc., must not be sprayed during operation.
References MPa is used for pressure unit. The conversion ratio is 1MPa=10.1972kgf/cm².

Electrical specifications

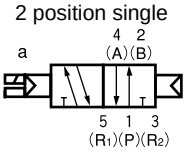
Descriptions		W4GB2
Rated voltage V	DC	12 and 24
	AC	100
Rated voltage fluctuation range		±10%
Holding current A	DC24V	0.025
	DC12V	0.050
	AC100V	0.012
Power consumption W	DC24V	0.6
Note 4	DC12V	0.6
Apparent power VA Note 5	AC100V	1.2
Heat resistance class		B

Note 4: Surge suppressor/indicator is provided as standard.
Note 5: In multi-connector/D sub-connector/flat cable connector joint specifications, AC100 V is not available.
In serial transmission connection specifications, AC100V and DC12 V are not available.

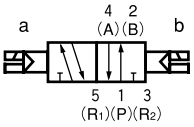
JIS symbol

-5 port valve

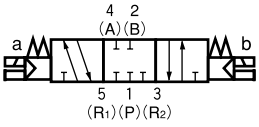
2 position single



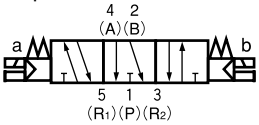
2 position double



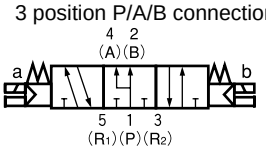
3 position all ports closed



3 position A/B/R connection



3 position P/A/B connection



Individual specifications

Descriptions		MW4GB2/MW4GZ2									
		T10	T20	T30	T51	T53	T8G1 T8D1	T8G2 T8D2	T8G7 T8D7	T8MA	T8M6
Max. station no.	Standard wiring	18	-	18	18	18	16	16	16	4	8
	Double wiring	9	8	12	9	12	8	8	8	2	4
Maximum solenoid number		18	16	24	18	24	16	32	16	4	8
Port size	Port A/B	Push-in joint 4, 6, 8 dia. and Rc1/8									
	Port P/R	Push-in joint 8 and 10 dia.									

Refer to P.25 for mass.

Descriptions			MW4GB2/MW4GZ2	
			P-> A/B	A/B-> R
Ef. sec. area mm²	Port size	Port A/B	Push-in joint 8 dia.	
	2 position		11	9(12)
	All ports closed		10	10
	ABR connection		10	9(12)
	PAB connection		12	10

* Effective sectional area of 2 position and ABR connection is the value when a check valve is integrated.
* The value in ( ) will apply when any check valve will not be installed.

Descriptions			MW4GB2/MW4GZ2	
			When the power is ON	When the power is OFF
Response time ms	2 position	Single	22	24
		Double	26	-
	3 position	ABR connection	25	35

The response time is the value where supply pressure 0.5MPa, 20℃ and not lubricated. It may vary per pressure and oil quality.

Reduced wiring specifications

Descriptions	T10	T20	T30	T51	T53
Type	Common gland M3 screw type	Multi connector	D sub-connector	20P Flat cable connector Without power supply terminal	26P Flat cable connector Without power supply terminal
Connection connector	-	HIROSE ELECTRIC CO. LTD. RM21WTP-20S 20 pins	MIL standards D sub-connector 25 pins	MIL-C-83563 standards Pressure welding socket 20 pins	MIL-C-83563 standards Pressure welding socket 26 pins

Serial transmission slave unit specifications (refer to P.78 for the applicable PLC table.)

Descriptions \ Network name	Slave unit model no.	CC-Link(Ver1.10)			DeviceNet *1			AS-i(Ver2.0)	
		T8G1	T8G2	T8G7	T8D1	T8D2	T8D7	T8MA	T8M6
Communication speed		156K/625K/2.5M/5M/10Mbps			125K/250K/500Kbps			167Kbps	
Power supply voltage	Unit side	DC24V ±10%			DC24V ±10%			DC30V ± 2%	
	Valve side	DC24V +10% and -5%			DC24V +10% and -5%			DC24V +10% and -5%	
	Communication side	-			DC11 to 25V			-	
Current consumption	Unit side	60mA or less	100mA or less	75mA or less*2	70mA or less	90mA or less	80mA or less *2	60mA or less *2	90mA or less *2
	Valve side	15mA or less (when all points are turned off.)			15mA or less (when all points are turned off.)			15mA or less (when all points are turned off.)	
	Communication side	-			50mA or less			-	
Input no./output no.		0/16	0/32	16/16	0/16	0/32	16/16	4/4*3	8/8*4
Operating indication		Power supply/communication state			Power supply/communication state/valve power supply			Power supply/communication state	
Others		-			Contact us about an EDS file *5.			Profile: 7 and F *6	

*1 Other DeviceNet conformed networks (CompoBus/D and DLNK, etc.) are also available.
*2 If power supply of input block is common with unit power supply, the following expression must be calculated.
T8G7: (unit side current consumption) =60mA+(35mA x input block no.)+(sum of internal current consumption of connected sensors)
T8D7: (unit side current consumption) =80mA+(35mA x input block no.)+(sum of internal current consumption of connected sensors)
T8MA: (unit side current consumption) =60mA+(35mA x input block no.)+(sum of internal current consumption of connected sensors)
T8M6: (unit side current consumption) =90mA+(35mA x input block no.)+(sum of internal current consumption of connected sensors)
However, select a sensor as unit side current consumption be 600mA or less (for T8G7, T8D7) and 250mA or less (for T8MA and T8M6).
*3: If of slave unit (T8MA) of 4 points input/4 points output type, all outputs are used for valves.
*4: Slave unit (T8M6) of 8 points input/8 points output type requires two pieces of address.
*5: EDS file: a text file contains parameters to communicate with each bland of masters.
*6: Profile: when communicating with master, meaning of I/O data and parameters of a slave is defined. (Defined in AS-i specifications.).

I/O block specifications

-Input block

Descriptions \ Model no.	NW4GB2-IN-N-K	NW4GB2-IN-N-B	NW4GB2-IN-P-K	NW4GB2-IN-P-B
Input no.	4 points			
Rated input voltage	DC24V			
Rated input current	7mA			
ON voltage	DC15V and over (between each input terminal and V)		DC15V and over (between each input terminal and G)	
OFF voltage/OFF current	DC5V or less (between each input terminal and V)/1.5mA or less		DC5V or less (between each input terminal and G)/1.5mA or less	
Input type	Sink type		Source type	
Power supply	Common with unit power supply	External power supply	Common with unit power supply	External power supply
Operating indication	Power supply/input status			

*1 Refer to P.55 for model no.

-Output block

Descriptions \ Model no.	NW4GB2-OUT-N-B	NW4GB2-OUT-P-B
Output no.	4 points	
Rated voltage	DC24V	
Max. load current	1A/1point (3A/common)	
Recovery voltage	1.5V or less	
Output type	Sink type	Source type
Protective circuit	Over current protection/reverse connection protection	
Fuse	Power supply for external load : DC24V and 5A (can be replaced)	
Operating indication	Power supply/output state	

*1 Refer to P.55 for model no.

How to order

Common gland/multi connector/D sub-connector/flat cable connector

-Manifold model no.

MW4GB2 1 0 - C8 – T10 W H D - 5 - 3

MW4GZ2 1 0 - C8 – T10 W H — 5 - 3

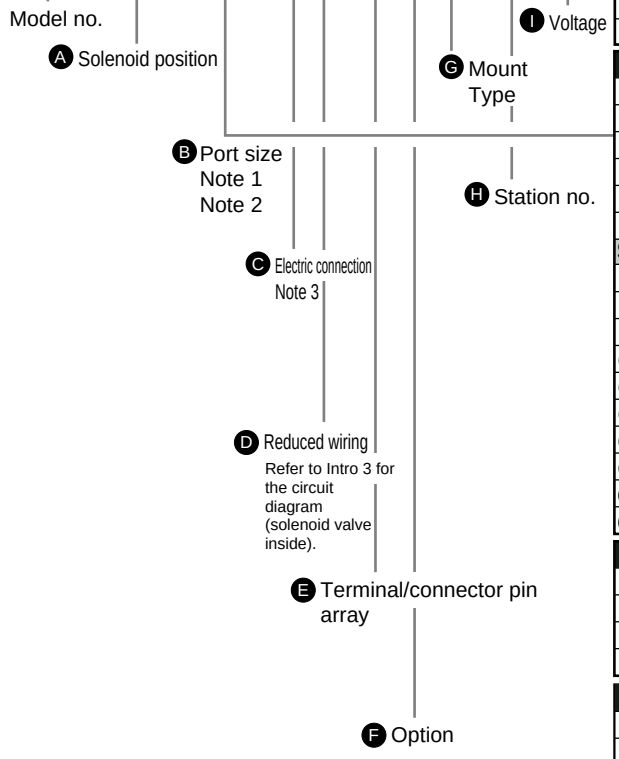
-Discrete valve block with solenoid valve

NW4GB2 1 0 - C8 - ○ W H — 3

NW4GZ2 1 0 - C8 - ○ W H — 3

-Discrete solenoid valve (NW4GB2/NW4GZ2 common Note 9)

W4GB2 1 9 - 00 — H — 3



Symbol	Content	Manifold MW4GB2	Manifold MW4GZ2	With solenoid valve Discrete block NW4GB2	With solenoid valve Discrete block NW4GZ2	Discrete solenoid W4GB2
A Solenoid position						
1	2 position single	●	●	●	●	●
2	2 position double	●	●	●	●	●
3	3 position all ports closed	●	●	●	●	●
4	3 position ABR connection	●	●	●	●	●
5	3 position PAB connection	●	●	●	●	●
8	Mix manifold	●	●			
B Port size (port A/B)						
C4	4 dia. push-in joint	●	●	●	●	
C6	6 dia. push-in joint	●	●	●	●	
C8	8 dia. push-in joint	●	●	●	●	
CL6	6 dia. radial push-in joint (upward)	●		●		
CL8	8 dia. radial push-in joint (upward)	●		●		
CX	Push-in joint mix	●	●			
Single plug	Port A / Port B					
C4NC	4 dia. push-in joint / Plug	●	●	●	●	
C6NC	6 dia. push-in joint / Plug	●	●	●	●	
C8NC	8 dia. push-in joint / Plug	●	●	●	●	
C4NO	Plug / 4 dia. push-in joint	●	●	●	●	
C6NO	Plug / 6 dia. push-in joint	●	●	●	●	
C8NO	Plug / 8 dia. push-in joint	●	●	●	●	
CL6NC	6 dia. radial push-in joint (upward) / Plug	●		●		
CL8NC	8 dia. radial push-in joint (upward) / Plug	●		●		
CL6NO	Plug / 6 dia. radial push-in joint (upward)	●		●		
CL8NO	Plug / 8 dia. radial push-in joint (upward)	●		●		
C Electric connection						
Blank	Connector relay circuit board specifications for DC			●	●	
2 to 8	Refer to P. 50 for cable length for AC.			●	●	
D Reduced wiring (light and surge suppressor provided as standard)						
T10	Common gland (M3 screw) left specifications	●	●			
T20	Multi connector left specifications Note 4	●	●			
T30	D sub-connector left specifications Note 4	●	●			
T51	20-pin flat cable connector (no power supply terminal) left spec. Note 4	●	●			
T53	26-pin flat cable connector (no power supply terminal) left spec. Note 4	●	●			
E Terminal/connector pin array						
Blank	Standard wiring Note 5	●	●	●	●	
W	Double wiring Note 5	●	●	●	●	
F Option						
Blank	No option	●	●	●	●	●
M	Non-locking manual override Note 6	●	●	●	●	●
M7	Manual override with OFF function Note 6	●	●	●	●	●
H	With check valve (standard) Note 7	●	●	●	●	●
K	External pilot	●	●			
A	Ozone/coolant proof	●	●	●	●	●
F	A/B port filter integrated Note 8	●	●	●	●	
G Mount type						
Blank	Direct mount type	●	●			
D	DIN rail mount type	●				
H Station no.						
2 to 18	2 stations to 18 stations (The specifications may vary depended with the reduced wiring specifications. Individual specifications (P.21) must be checked.)	●	●			
I Voltage						
1	AC100V (rectified bridge integrated)	●	●	●	●	●
3	DC24V	●	●	●	●	●
4	DC12V	●	●	●	●	●

Shaded section shows not available.

Note on selection guide

Always fill out [manifold specification sheet].

Note 1: Plug specifications (*NC/*NO) of port A or B are available only for 2 position single.
A port size of port P/R must be specified in the supply and exhaust block section.

Note 2: CL* radial push-in joint (upward) is available only for single/double. Also, port A: long elbow is provided, while port B: short elbow provided.
Port A/B is the same size as mix (CX) of radial push-in joints (upward). Also, if CL*NC/NO is specified, short elbow joint will be provided.

Note 3: If change of AC specifications will be implemented, select masking plate attached valve block as a reserved block.

Note 4: In multi-connector (T20), D sub-connector (T30) and flat cable connector (T5*) specifications, AC100V is not available.

Note 5: Blank: it is wired according to a type of installed valve.
W: wiring for all double solenoid will apply regardless of type of valve mounted.
For multi connector T20, no standard wiring is available.

Note 6: Non-locking manual override (M) and manual override with OFF function (M7) can not be selected together.

Note 7: For 3 position all ports closed and PAB connection, check valve specifications (H) are not available.

Note 8: Port P has an integrated filter.

Note 9: Discrete solenoid valve used for discrete valve block with solenoid valve NW4GZ2 is the same as W4GB2*9.

How to order

Serial transmission

-Manifold model no.

MW4GB2 1 0 - C8 – T8G1 W H D - 5 - 3
MW4GZ2 1 0 - C8 – T8G1 W H — 5 - 3

-Discrete valve block with solenoid valve

NW4GB2 1 0 - C8 - ○ W H — 3
NW4GZ2 1 0 - C8 - ○ W H — 3

-Discrete solenoid valve (NW4GB2/NW4GZ2 common Note 7)

W4GB2 1 9 - 00 — H — 3

Model no.
A Solenoid position
B Port size
Note 1
Note 2
C Electric connection
D Reduced wiring
Refer to Intro 3 for the circuit diagram (solenoid valve inside) .
E Terminal/connector pin Array
F Option
G Mount type
H Station no.
I Voltage

Table 1 [I/O block combination table]

Symbol	Combination of layout and station no. of I/O block						
Y10							IN
Y20						IN	IN
Y30					IN	IN	IN
Y40				IN	IN	IN	IN
Y01							OUT
Y02						OUT	OUT
Y03					OUT	OUT	OUT
Y04				OUT	OUT	OUT	OUT
Y11						OUT	IN
Y21					OUT	IN	IN
Y31				OUT	IN	IN	IN
Y41			OUT	IN	IN	IN	IN
Y12					OUT	OUT	IN
Y22				OUT	OUT	IN	IN
Y32			OUT	OUT	IN	IN	IN
Y42		OUT	OUT	IN	IN	IN	IN

Transmission block side

*1: How to read table
E.g.) Y11 is the combination of an input block (4 points) and an output block (4 points).
2: Refer to P.75 "I/O point number compatible with I/O No. of wiring method T8" for details.

Note on selection guide

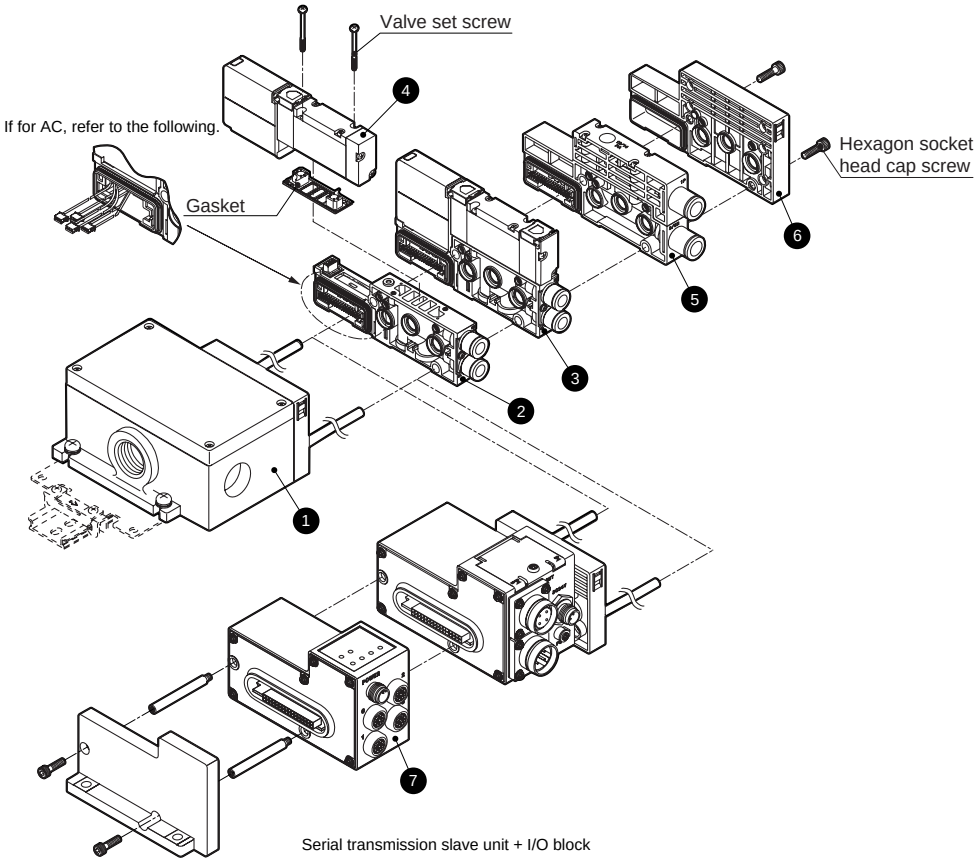
Always fill out [manifold specification sheet].

Note 1: Plug specifications (*NC/*NO) of port A or B are available only for 2 position single.
A port size of port P/R must be specified in the supply and exhaust block section.
Note 2: CL* radial push-in joint (upward) is available only for single/ double. Also, port A: long elbow is provided, while port B: short elbow provided.
Port A/B is the same size as mix (CX) of radial push-in joint (upward). Also, if CL*NC/NO is specified, short elbow joint will be provided.
Note 3: Blank: It is wired according to a type of installed valve.
W: Wiring for all double solenoid will apply regardless of type of valve mounted.
Note 4: Non-locking manual override (M) and manual override with OFF function (M7) can not be selected together.
Note 5: For 3 position all ports closed and PAB connection, check valve specifications (H) are not available.
Note 6: Port P has an integrated filter.
Note 7: Discrete solenoid valve used for discrete valve block with solenoid valve NW4GZ2 is the same as W4GB2*9.
Note 8: Indicate I/O format of I/O block (sink/sauce) and type of power supply (slave unit common/external) on the manifold specification sheet (P.92 to 93).
Note 9: In serial transmission connection specifications, AC100V and DC12 V are not available.

Symbol	Content		Model no. Manifold MW4GB2	Manifold MW4GZ2	With solenoid valve Discrete block NW4GB2	With solenoid valve Discrete block NW4GZ2	Discrete solenoid W4GB2
A Solenoid position							
1	2 position single		●	●	●	●	●
2	2 position double		●	●	●	●	●
3	3 position all ports closed		●	●	●	●	●
4	3 position ABR connection		●	●	●	●	●
5	3 position PAB connection		●	●	●	●	●
8	Mix manifold		●	●			
B Port size (port A/B)							
C4	4 dia. push-in joint		●	●	●	●	
C6	6 dia. push-in joint		●	●	●	●	
C8	8 dia. push-in joint		●	●	●	●	
CL6	6 dia. radial push-in joint (upward)		●		●		
CL8	8 dia. radial push-in joint (upward)		●		●		
CX	Push-in joint mix		●	●			
Single plug	Port A	Port B					
C4NC	4 dia. push-in joint	Plug	●	●	●	●	
C6NC	6 dia. push-in joint	Plug	●	●	●	●	
C8NC	8 dia. push-in joint	Plug	●	●	●	●	
C4NO	Plug	4 dia. push-in joint	●	●	●	●	
C6NO	Plug	6 dia. push-in joint	●	●	●	●	
C8NO	Plug	8 dia. push-in joint	●	●	●	●	
CL6NC	6 dia. radial push-in joint (upward)	Plug	●		●		
CL8NC	8 dia. radial push-in joint (upward)	Plug	●		●		
CL6NO	Plug	6 dia. radial push-in joint (upward)	●		●		
CL8NO	Plug	8 dia. radial push-in joint (upward)	●		●		
C Electric connection							
Blank	Connector relay circuit board specifications for DC				●	●	
D Reduced wiring (light and surge suppressor provided as standard)							
T8G1	Serial transmission CC-Link	16 points output	●	●			
T8G2	Serial transmission CC-Link	32 points output	●	●			
T8G7	Serial transmission CC-Link	16 points input/16 points output	●	●			
T8D1	Serial transmission DeviceNet	16 points output	●	●			
T8D2	Serial transmission DeviceNet	32 points output	●	●			
T8D7	Serial transmission DeviceNet	16 points input/16 points output	●	●			
T8MA	Serial transmission AS-i	4 points input/4 points output	●	●			
T8M6	AS-i	8 points input/8 points output	●	●			
E Terminal/connector pin array							
Blank	Standard wiring	Note 3	●	●	●	●	
W	Double wiring	Note 3	●	●	●	●	
F Option							
Blank	No option		●	●	●	●	●
M	Non-locking manual override	Note 4	●	●	●	●	●
M7	Manual override with OFF function	Note 4	●	●	●	●	●
H	With check valve (standard)	Note 5	●	●	●	●	●
K	External pilot		●	●			
A	Ozone/coolant proof		●	●	●	●	●
F	A/B port filter integrated	Note 6	●	●	●	●	●
Y**	I/O block (Specify I/O block combination number in accordance with combine table 1 [I/O block combination table] in **.)	Note 8	●	●			
G Mount type							
Blank	Direct mount type		●	●			
D	DIN rail mount type		●				
H Station no.							
2 to 16	2 stations to 16 stations (The specifications may vary depended with the reduced wiring specifications. Individual specifications (P.21) must be checked.)		●	●			
I Voltage							
3	DC24V	Note 9	●	●	●	●	●

section shows not available.

Manifold components explanation and parts list



Main parts list (refer to P.47 to 60 for details.)

No.	Component name	Model no. (e.g.)	No.	Component name	Model no. (e.g.)
1	Wiring block	NW4GB2-T10	5	Supply and exhaust block	NW4G2-Q-10
2	Discrete valve block	NW4GB2-V1-C8	6	End block R	NW4G2-ER
3	Discrete valve block with solenoid valve	NW4GB220-C8-H-3	7	I/O block	NW4GB2-IN-N-B
4	Discrete solenoid valve	W4GB219-00-H-3			

Reduced wiring mass (DC)

NW4GB2 NW4GZ2 (g)

Block type		Mass	Block type		Mass
Valve block with solenoid valve	NW4GB210	177	Valve block with solenoid valve	NW4GZ210	177
	NW4GB220	193		NW4GZ220	192
	NW4GB2$^{3}_{5}$0	200		NW4GZ2$^{3}_{5}$0	199
Valve block with masking plate	NW4GB2-MP$^{S}_{D}$	113	Valve block with masking plate	NW4GZ2-MP$^{S}_{D}$	112
Wiring block (serial transmission slave unit)	NW4GB2-T8*	650	Wiring block (serial transmission slave unit)	NW4GB2-T8*	430
I/O block	NW4GB2-$^{IN}_{OUT}$-N-K$_{B}$	220	I/O block	NW4GB2-$^{IN}_{OUT}$-N-K$_{B}$	220

Common (g)

Block type		Mass	Block type		Mass
Supply and exhaust block	NW4G2-Q-*	137	Wiring block	NW4G2-T10	423
	NW4G2-QK-*	140		NW4G2-T20	490
	NW4G2-QZ-*	137		NW4G2-T30	370
	NW4G2-QKZ-*	143		NW4G2-T5*	367
End block	NW4G2-ER	91			
	NW4G2-EXR	96			

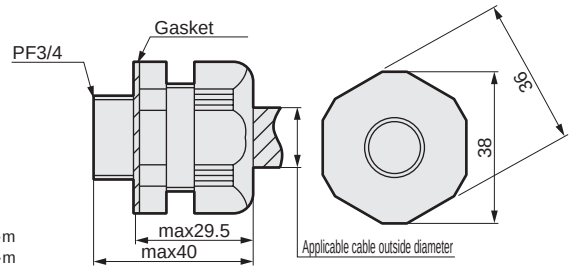
Repair parts and related parts list

No.	Parts name		Model no.
-	Cartridge type push-in joint and related parts	4 dia. axial type	4G2-JOINT-C4
		6 dia. axial type	4G2-JOINT-C6
		8 dia. axial type	4G2-JOINT-C8
		6 dia. radial type	4G2-JOINT-CL6/CLL6
		8 dia. radial type	4G2-JOINT-CL8/CLL8
		Plug cartridge	4G2-JOINT-CPG
		Blanking plug	For 6 dia./GWP6-B and for 8 dia./GWP8-B

Kit for wiring block T10

-Cable clamp

Model no.	Applicable cable O.D.	Descriptions
W4G-SCL-18A	14.5 to 16.5 dia.	Used for dust/jet-proof protection of cable
W4G-SCL-18B	16.5 to 18.5 dia.	

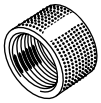


(Reference value)
Body tightening torque 4.0 to 4.5 N·m
Cable clamp tightening torque 3.0 to 3.5 N·m

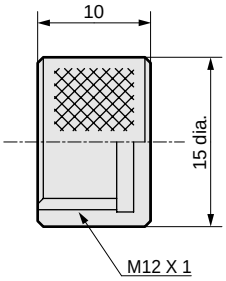
Part for I/O block

-Water proof cap

Model no.	Descriptions
W4G-XSZ-11	When power supply is common with serial transmission slave unit, this is used for jet-proof protection of power supply connector.



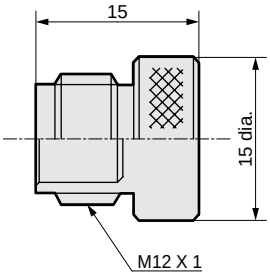
(Reference value)
Tightening torque 0.4 to 0.5 N·m



-Water proof plug

Model no.	Descriptions
W4G-XSZ-12	This is used for jet-proof protection of signal connector not used.

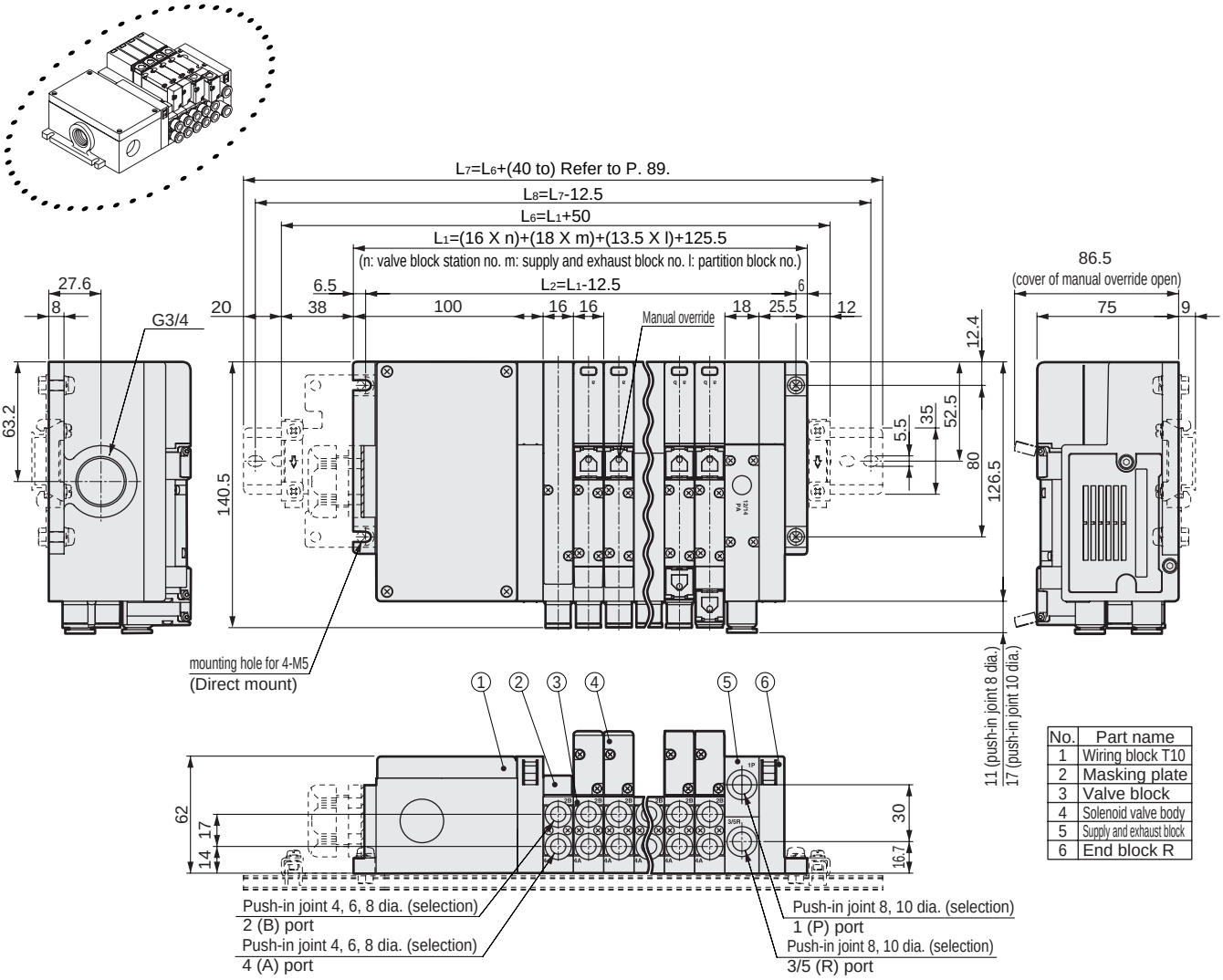
(Reference value)
Tightening torque 0.4 to 0.5 N·m



Sub-base side porting: Dimensions

MW4GB2

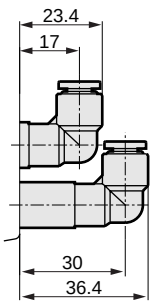
● Common gland (T10)



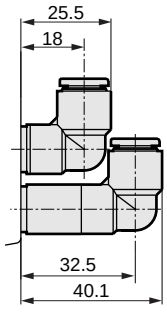
No.	Part name
1	Wiring block T10
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for valve block (upward)
Available only for single solenoid/double solenoid manifold
Port A=long elbow, while port B=short elbow

● 6 dia. (CL6)

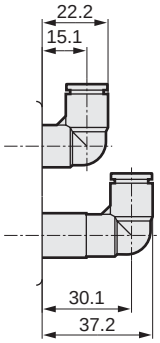


● 8 dia. (CL8)

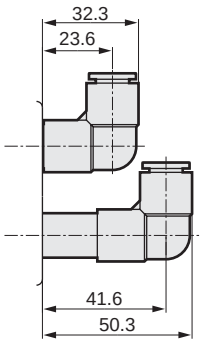


● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



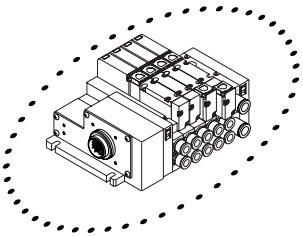
● 10 dia. (CL10)

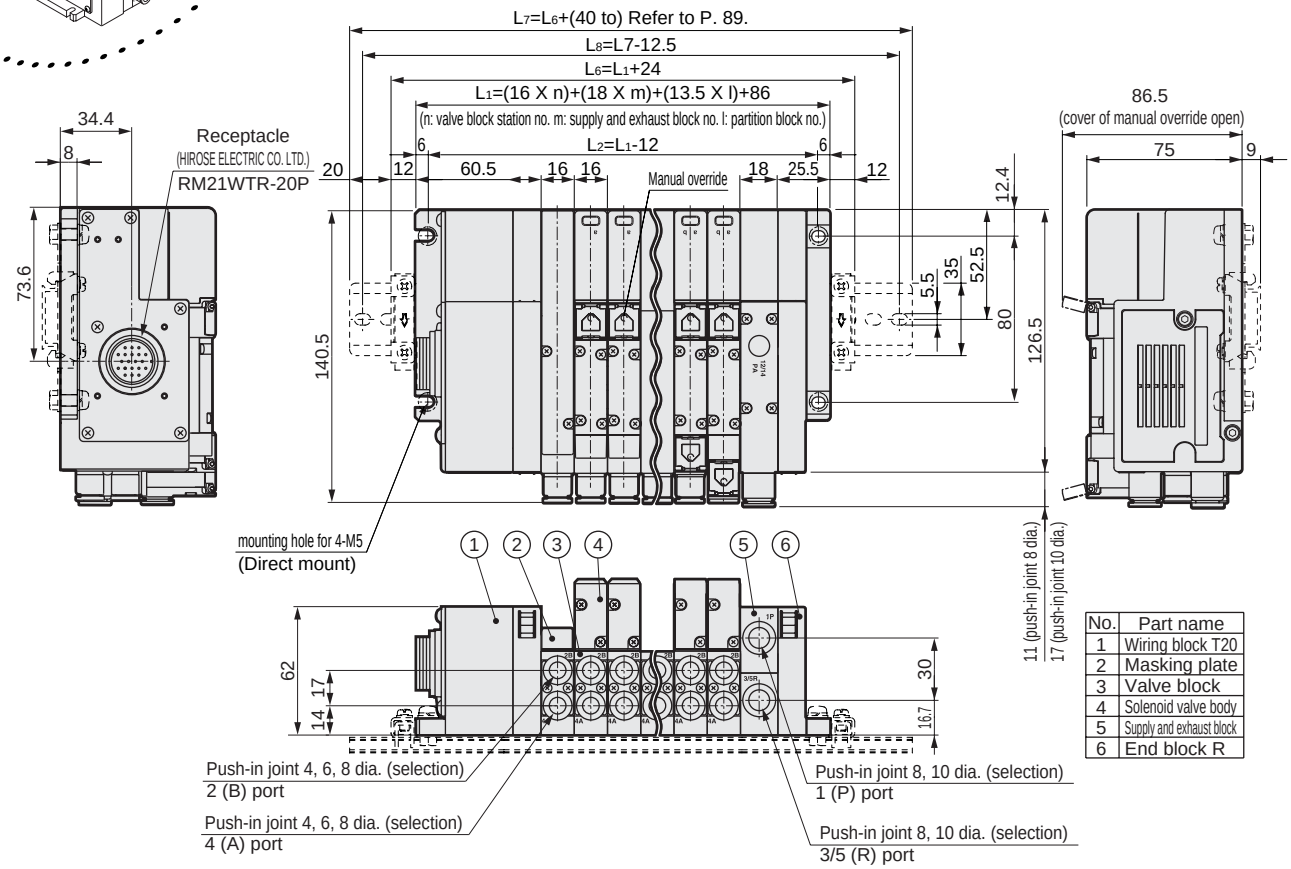


Sub-base side porting: Dimensions

MW4GB2

● Multi-connector (T20)

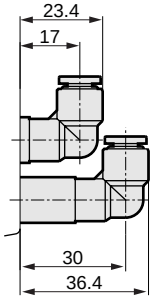




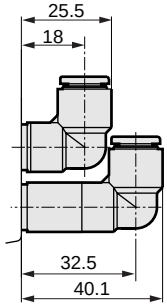
No.	Part name
1	Wiring block T20
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for valve block (upward)
Available only for single solenoid/double solenoid manifold
Port A=long elbow, while port B=short elbow

● 6 dia. (CL6)

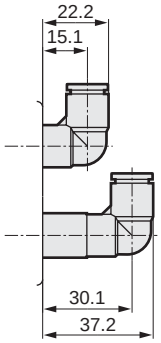


● 8 dia. (CL8)

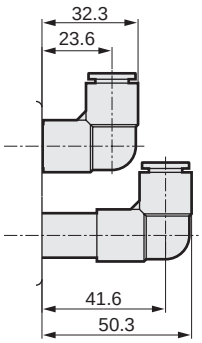


● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



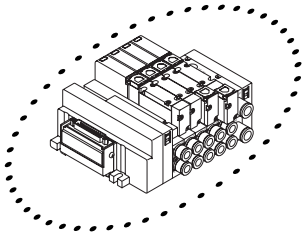
● 10 dia. (CL10)

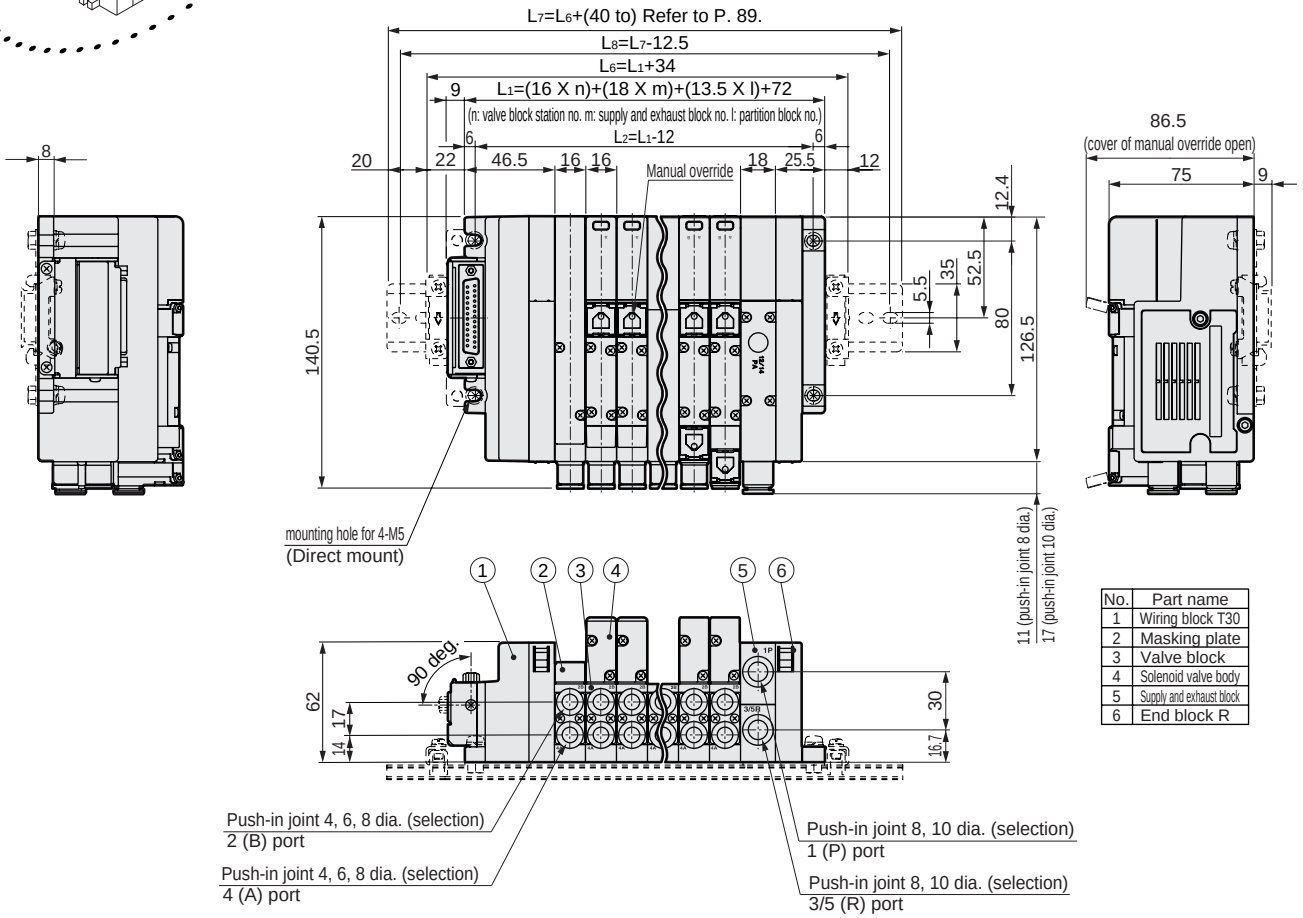


Sub-base side porting: Dimensions

MW4GB2

● D sub-connector (T30)

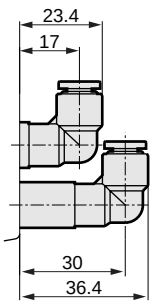




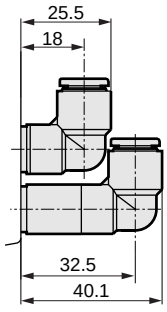
No.	Part name
1	Wiring block T30
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for valve block (upward)
Available only for single solenoid/double solenoid manifold
Port A=long elbow, while port B=short elbow

● 6 dia. (CL6)

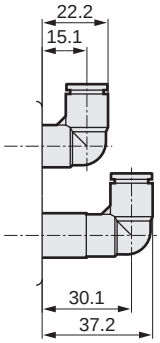


● 8 dia. (CL8)

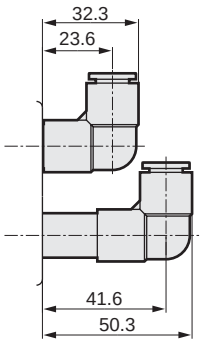


● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



● 10 dia. (CL10)

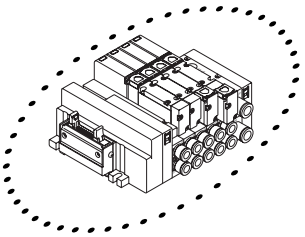


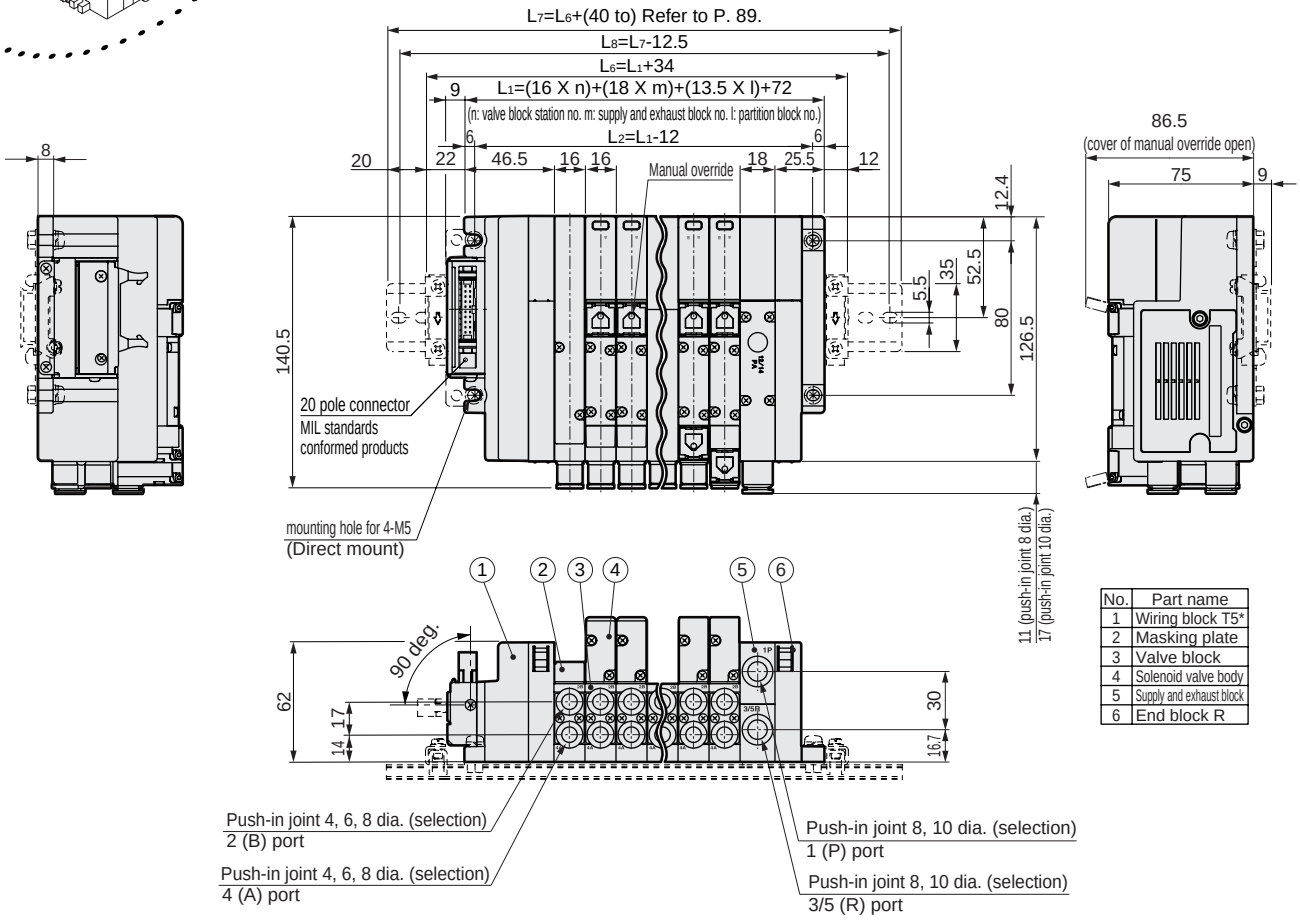
Sub-base side porting: Dimensions

MW4GB2

● Flat cable connector (T5*)

* This drawing shows T51.
For flat cable connector, T53 is available.
Dimensions are same as T51.

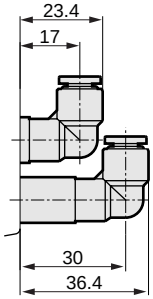




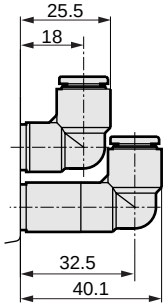
No.	Part name
1	Wiring block T5*
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for valve block (upward)
Available only for single solenoid/double solenoid manifold
Port A=long elbow, while port B=short elbow

● 6 dia. (CL6)

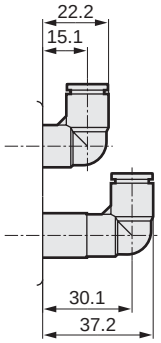


● 8 dia. (CL8)

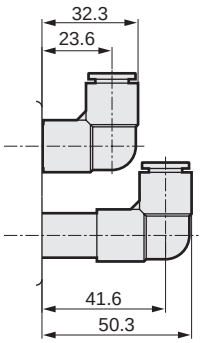


● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



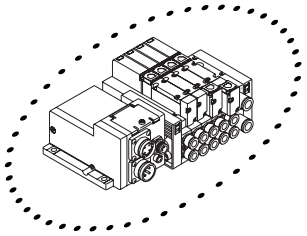
● 10 dia. (CL10)

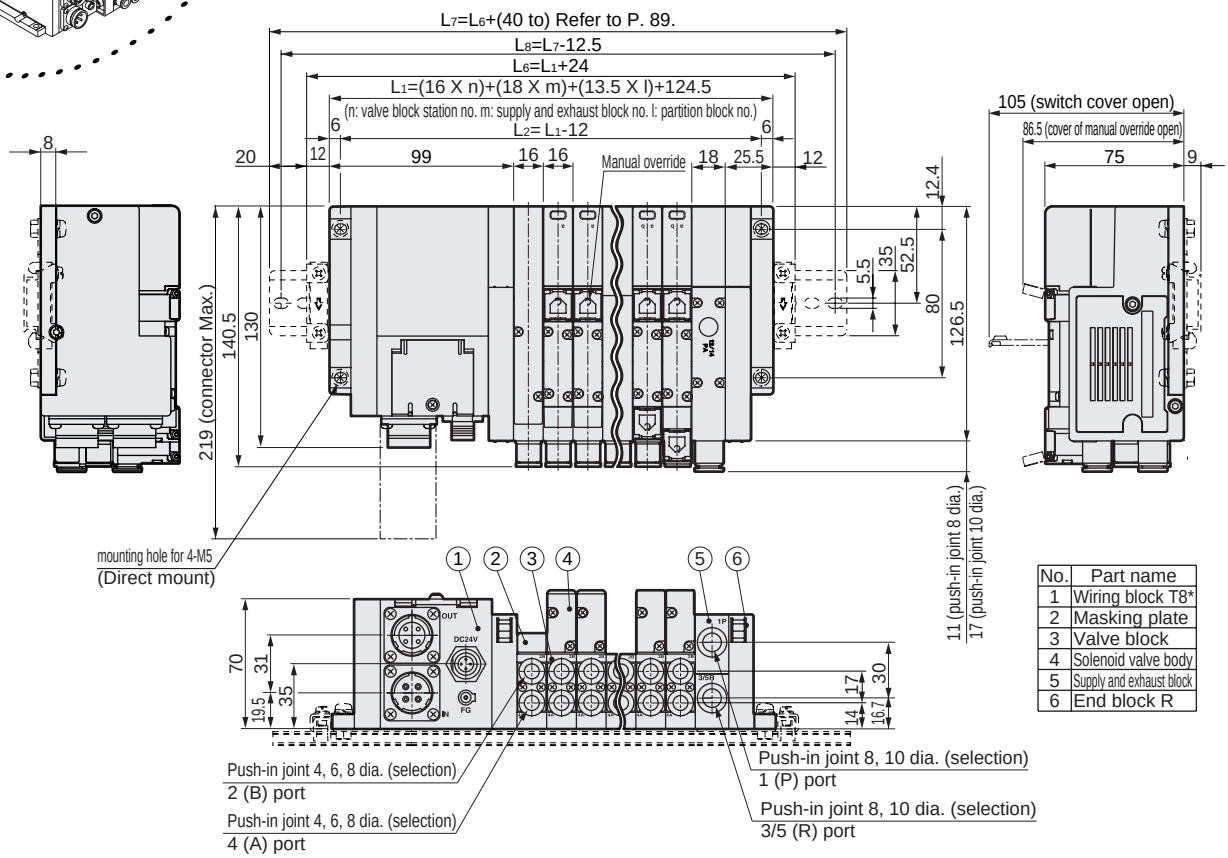


Sub-base side porting: Dimensions

MW4GB2

● Serial transmission CC-Link (T8G*)

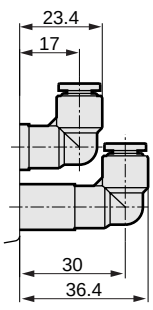




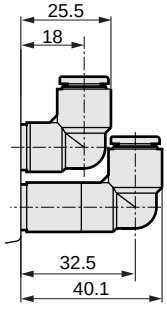
No.	Part name
1	Wiring block T8*
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for valve block (upward)
Available only for single solenoid/double solenoid manifold
Port A=long elbow, while port B=short elbow

● 6 dia. (CL6)

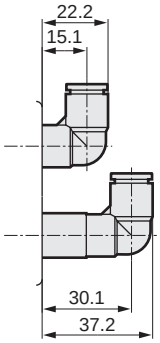


● 8 dia. (CL8)

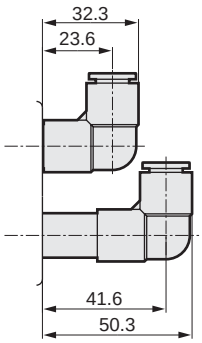


● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



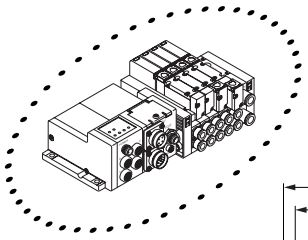
● 10 dia. (CL10)

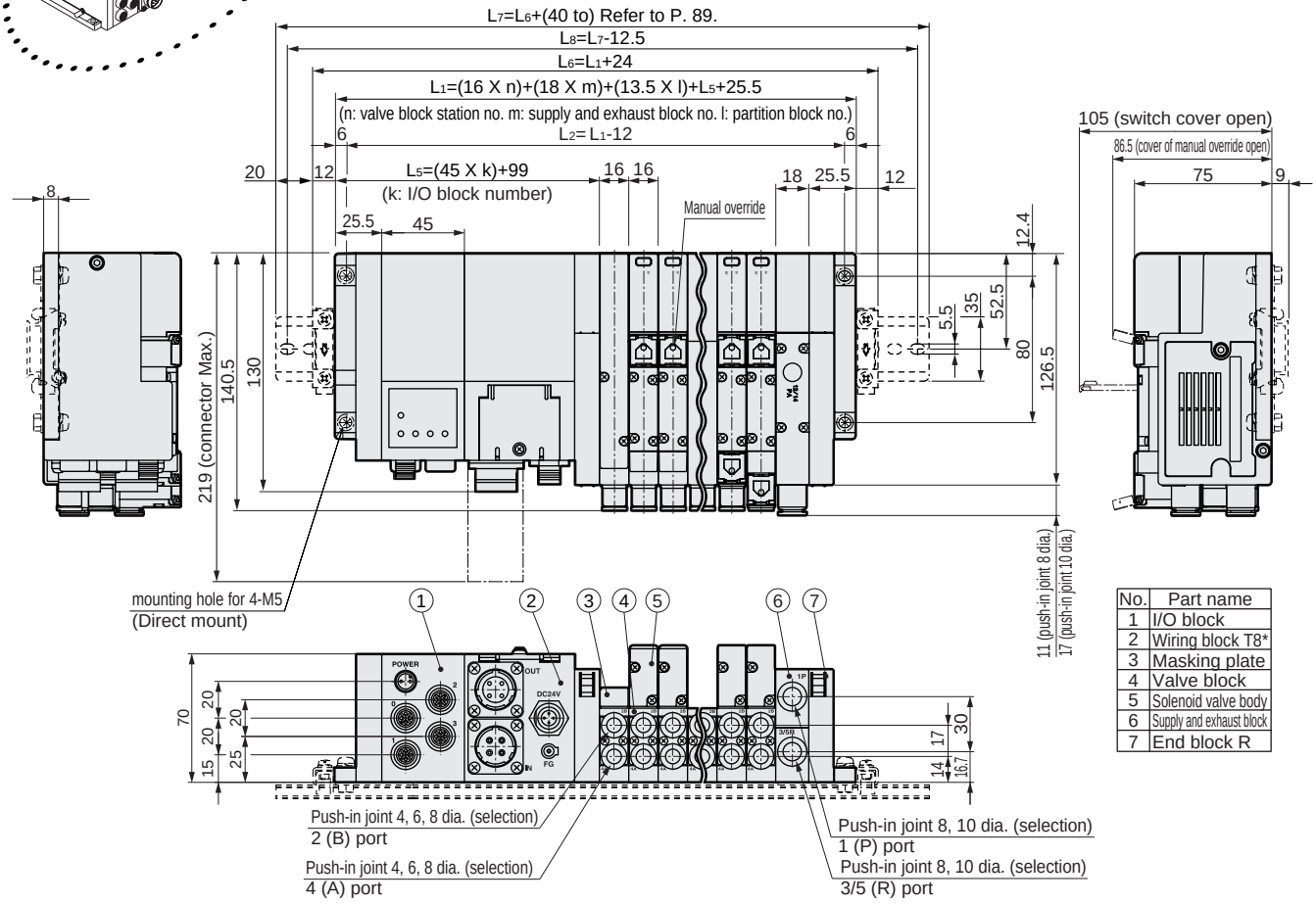


Sub-base side porting: Dimensions

MW4GB2

● Serial transmission CC-Link (T8G*)+I/O block

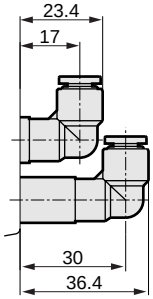




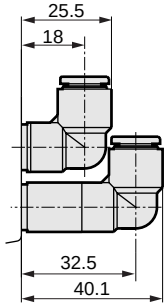
No.	Part name
1	I/O block
2	Wiring block T8*
3	Masking plate
4	Valve block
5	Solenoid valve body
6	Supply and exhaust block
7	End block R

● Radial push-in joint for valve block (upward)
Available only for single solenoid/double solenoid manifold
Port A=long elbow, while port B=short elbow

● 6 dia. (CL6)

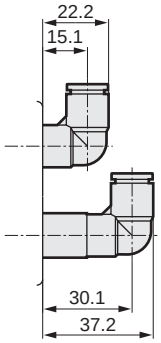


● 8 dia. (CL8)

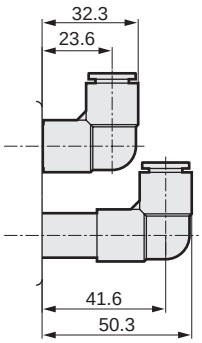


● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



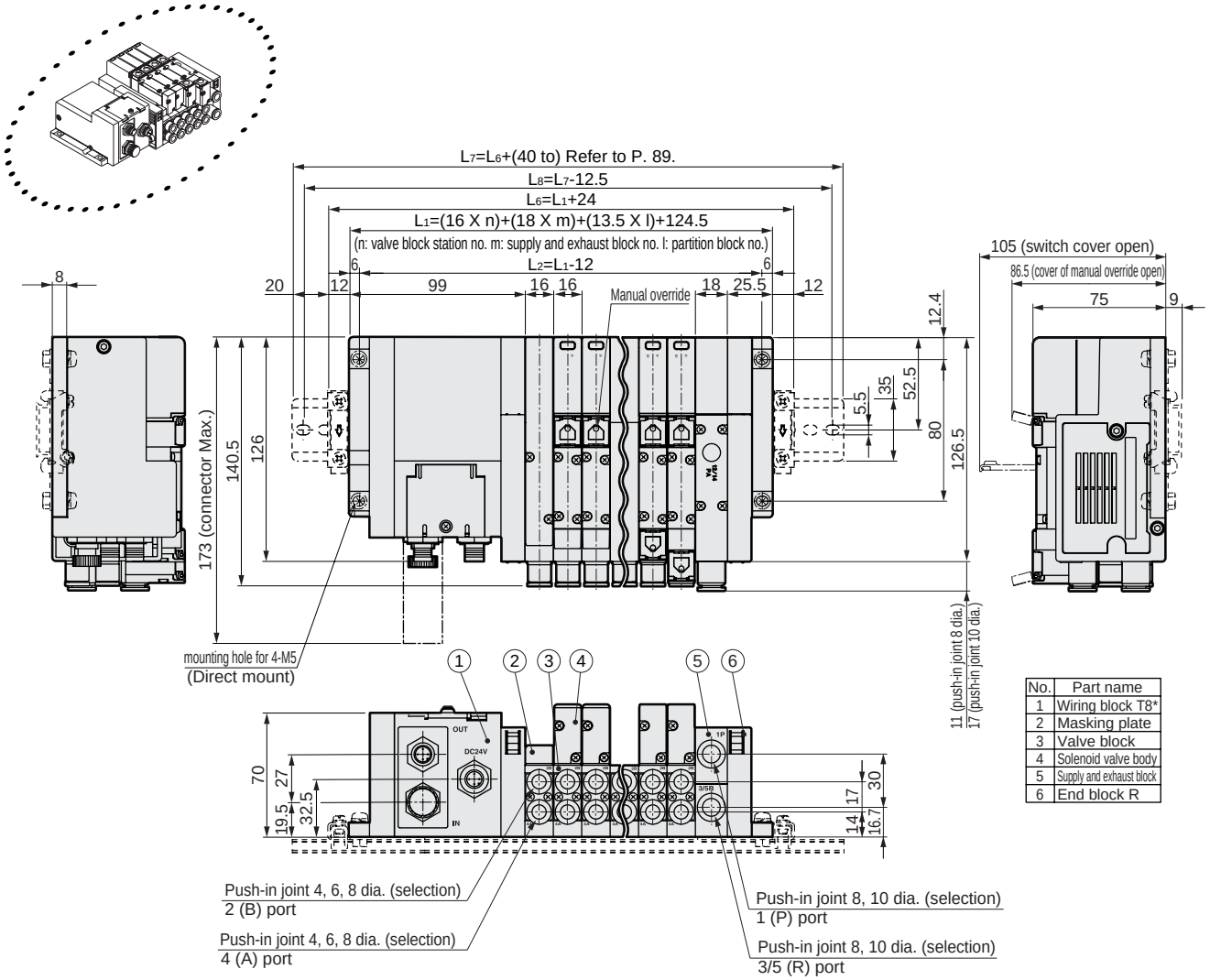
● 10 dia. (CL10)



Sub-base side porting: Dimensions

MW4GB2

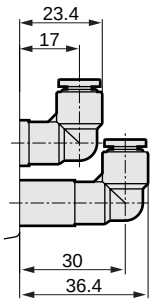
● Serial transmission DeviceNet (T8D*)



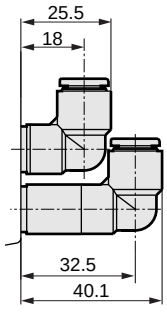
No.	Part name
1	Wiring block T8*
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for valve block (upward)
Available only for single solenoid/double solenoid manifold
Port A=long elbow, while port B=short elbow

● 6 dia. (CL6)

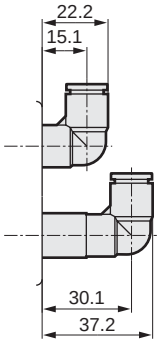


● 8 dia. (CL8)

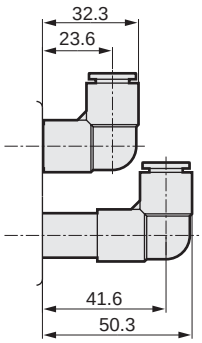


● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



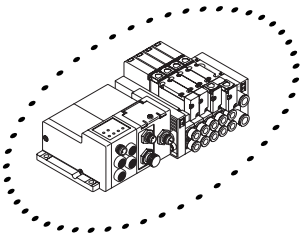
● 10 dia. (CL10)

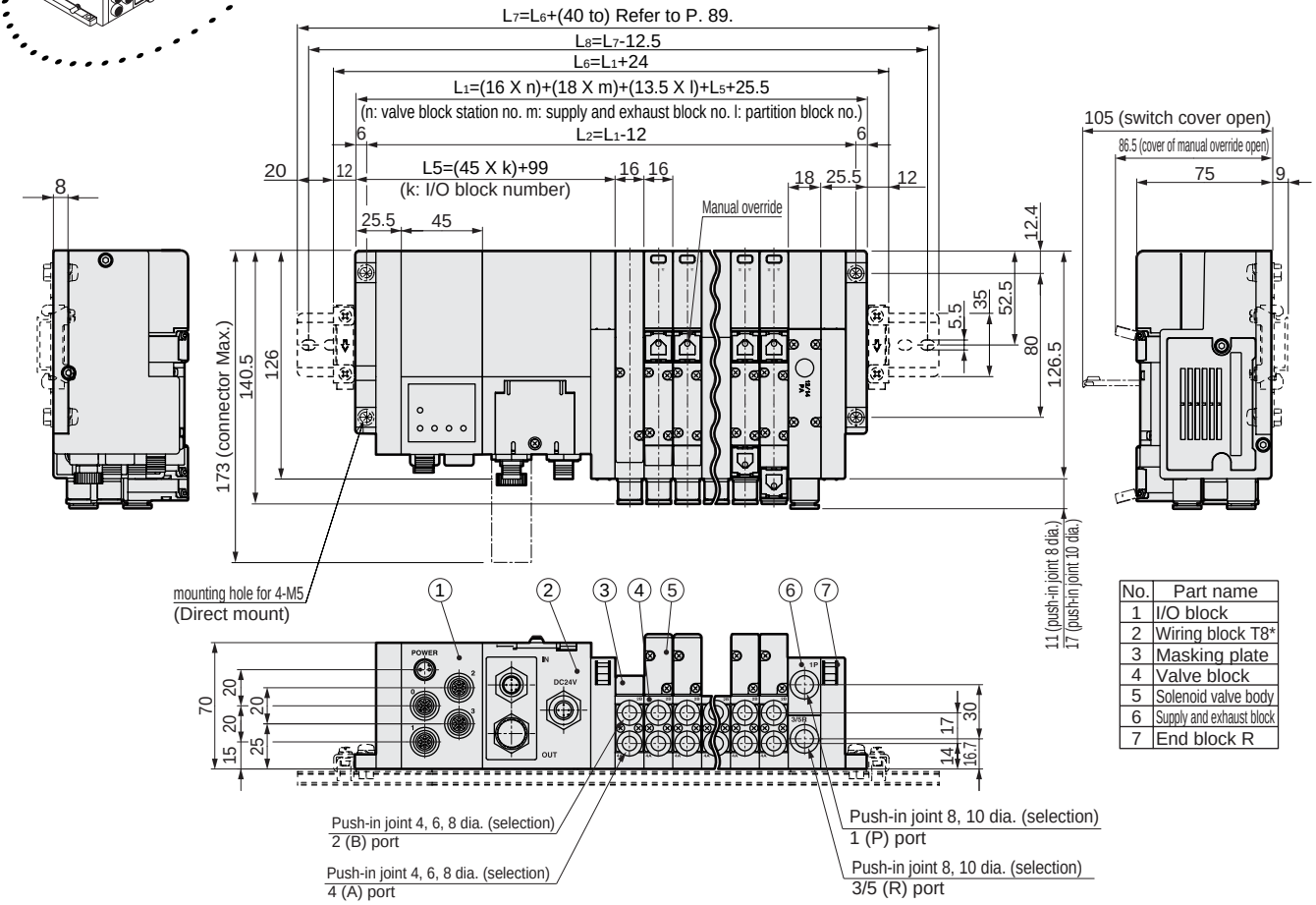


Sub-base side porting: Dimensions

MW4GB2

● Serial transmission DeviceNet (T8D*)+I/O block

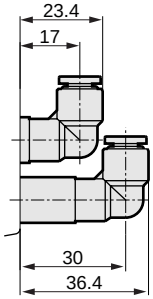




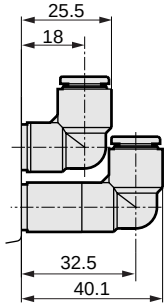
No.	Part name
1	I/O block
2	Wiring block T8*
3	Masking plate
4	Valve block
5	Solenoid valve body
6	Supply and exhaust block
7	End block R

● Radial push-in joint for valve block (upward)
Available only for single solenoid/double solenoid manifold
Port A=long elbow, while port B=short elbow

● 6 dia. (CL6)

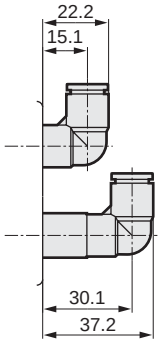


● 8 dia. (CL8)

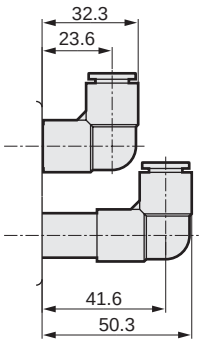


● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



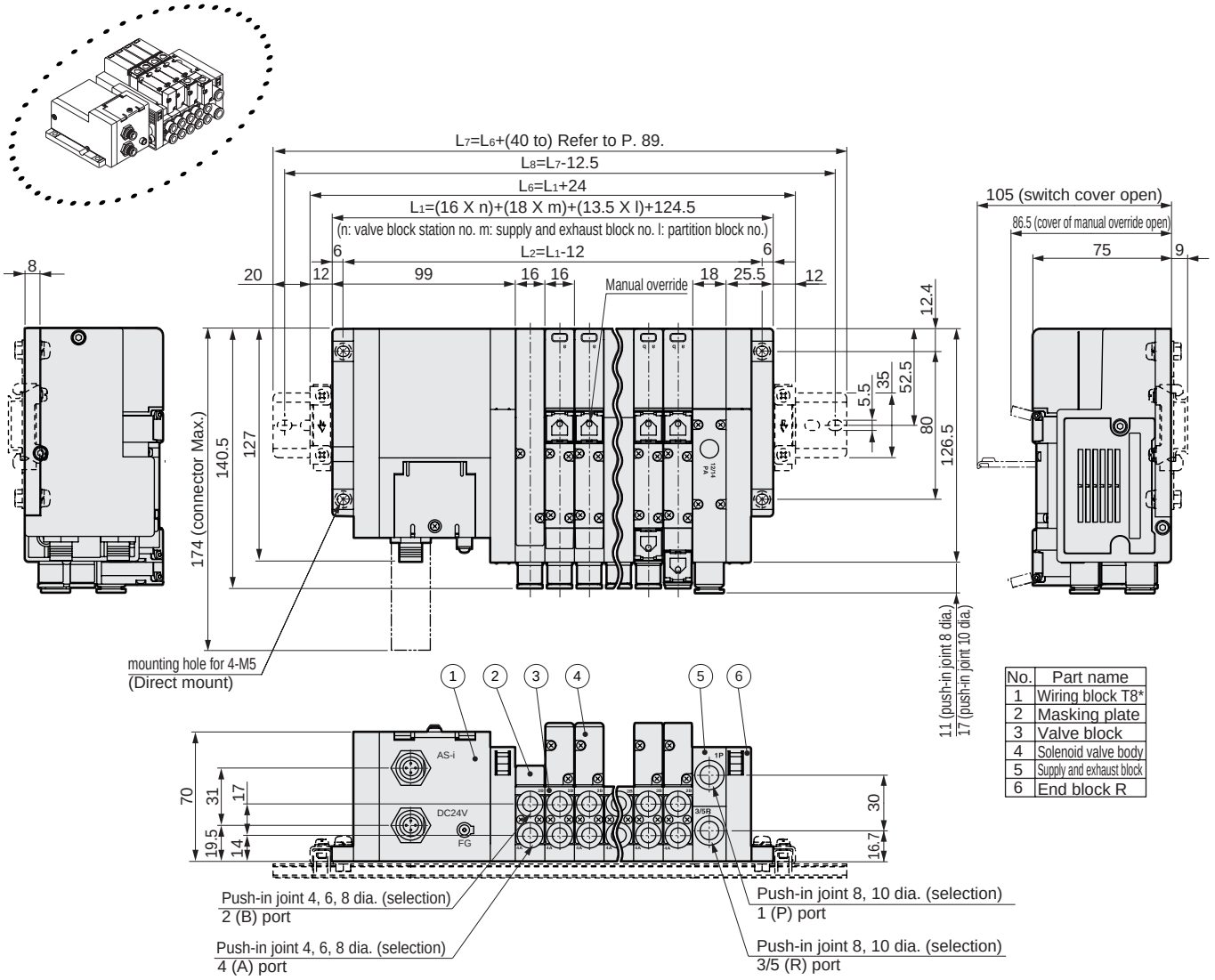
● 10 dia. (CL10)



Sub-base side porting: Dimensions

MW4GB2

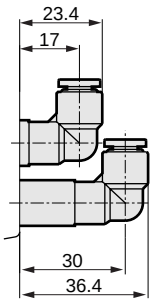
● Serial transmission AS-i (T8M*)



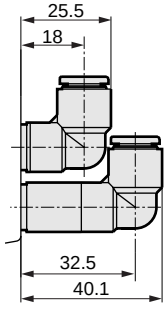
No.	Part name
1	Wiring block T8*
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for valve block (upward)
Available only for single solenoid/double solenoid manifold
Port A=long elbow, while port B=short elbow

● 6 dia. (CL6)

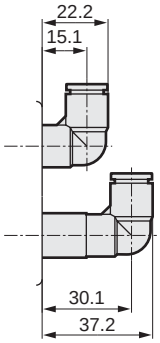


● 8 dia. (CL8)

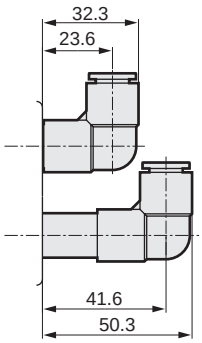


● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



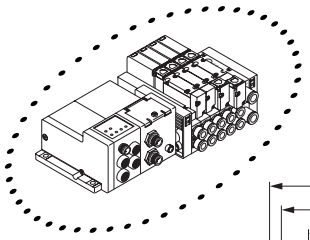
● 10 dia. (CL10)

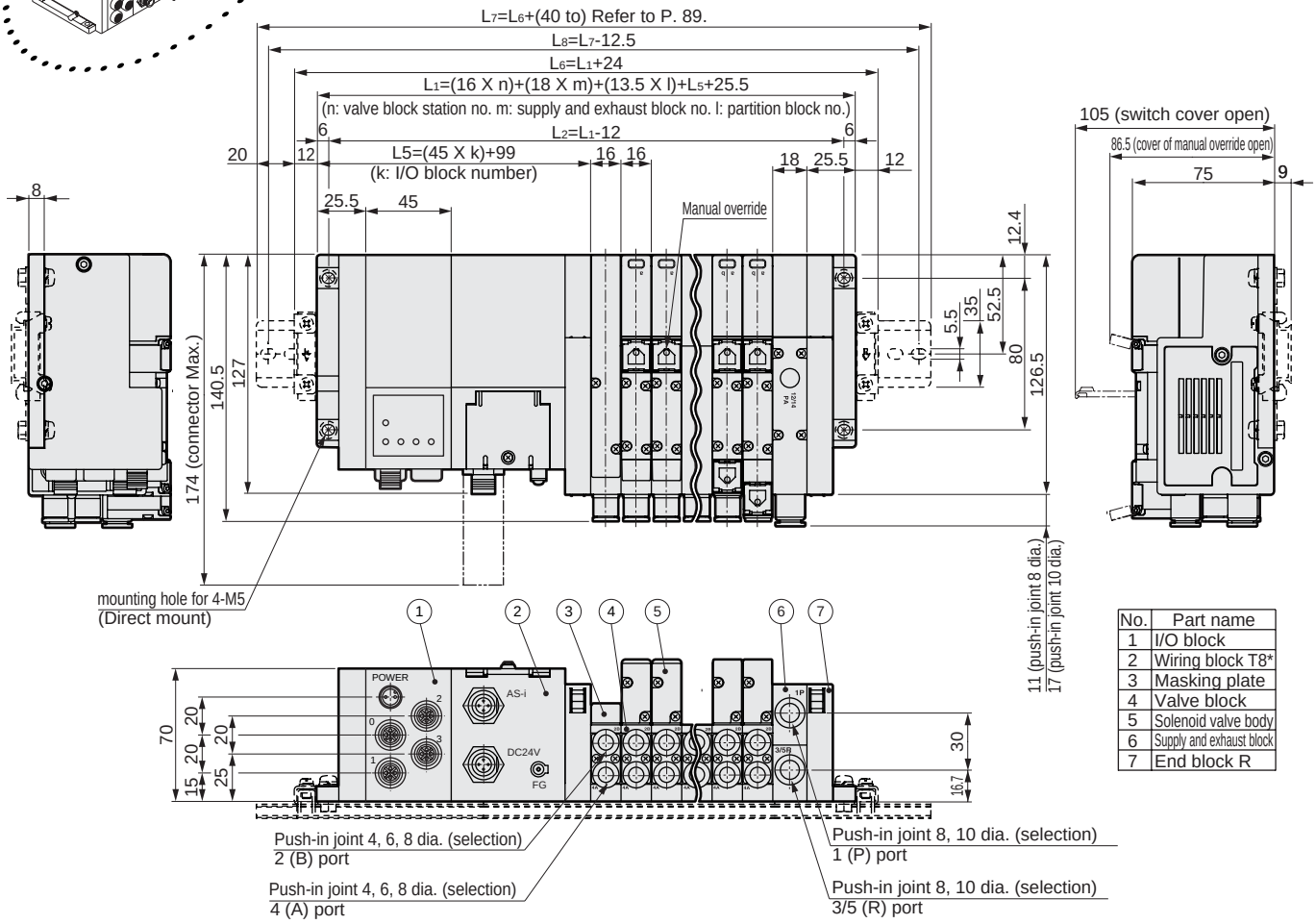


Sub-base side porting: Dimensions

MW4GB2

●Serial transmission AS-i (T8M*)+I/O block

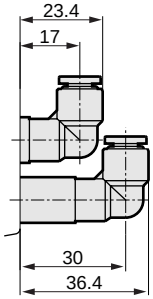




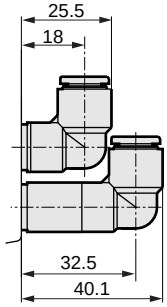
No.	Part name
1	I/O block
2	Wiring block T8*
3	Masking plate
4	Valve block
5	Solenoid valve body
6	Supply and exhaust block
7	End block R

●Radial push-in joint for valve block (upward)
Available only for single solenoid/double solenoid manifold
Port A=long elbow, while port B=short elbow

●6 dia. (CL6)

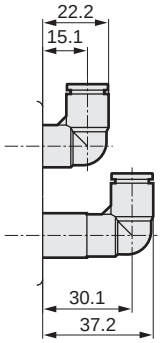


●8 dia. (CL8)

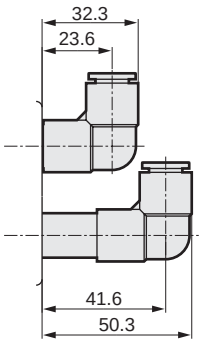


●Radial push-in joint for supply and exhaust block (upward)

●8 dia. (CL8)



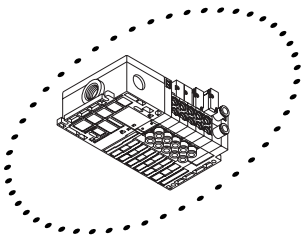
●10 dia. (CL10)

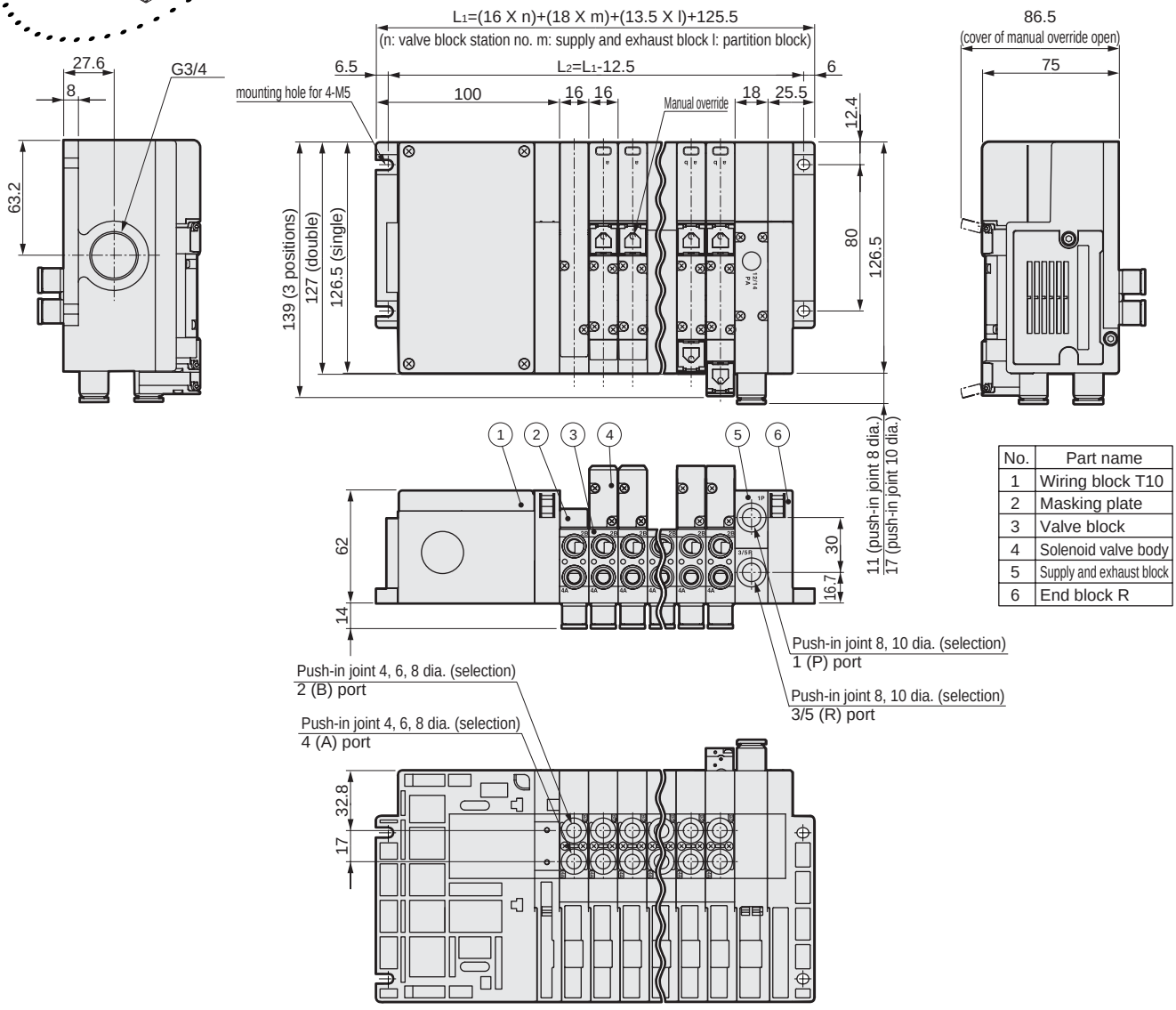


Sub-base back porting: Dimensions

MW4GZ2

● Common gland (T10)

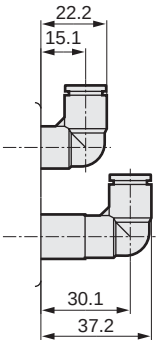




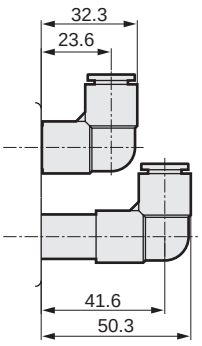
No.	Part name
1	Wiring block T10
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



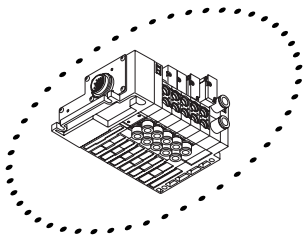
● 10 dia. (CL10)

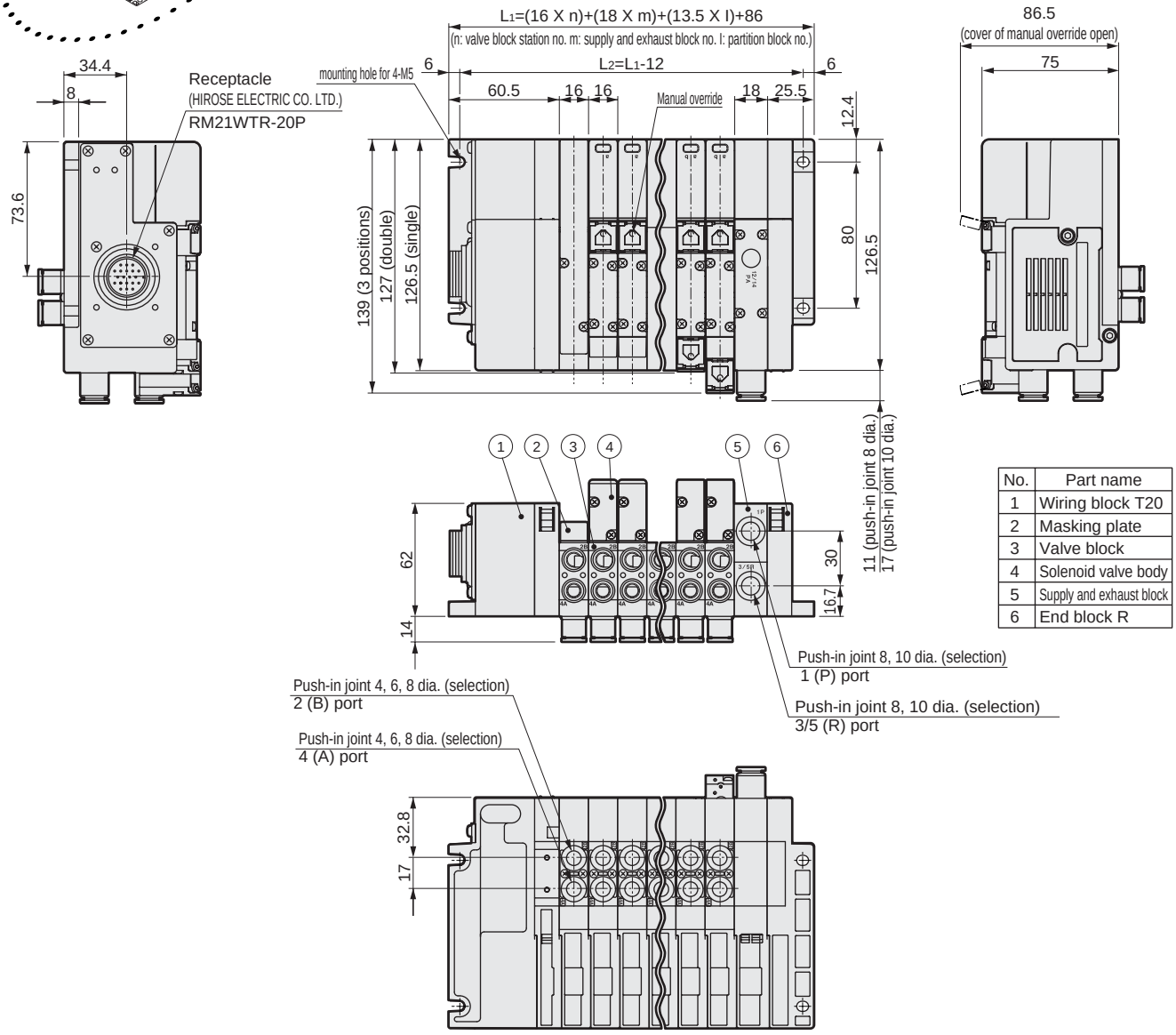


Sub-base back porting: Dimensions

MW4GZ2

● Multi-connector (T20)

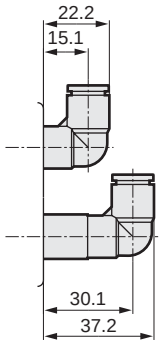




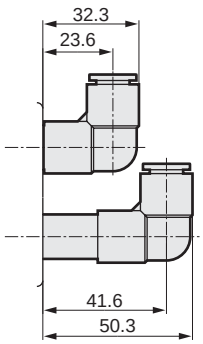
No.	Part name
1	Wiring block T20
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



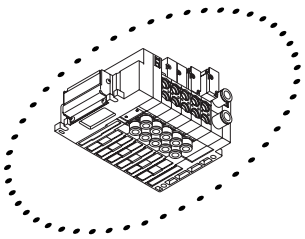
● 10 dia. (CL10)

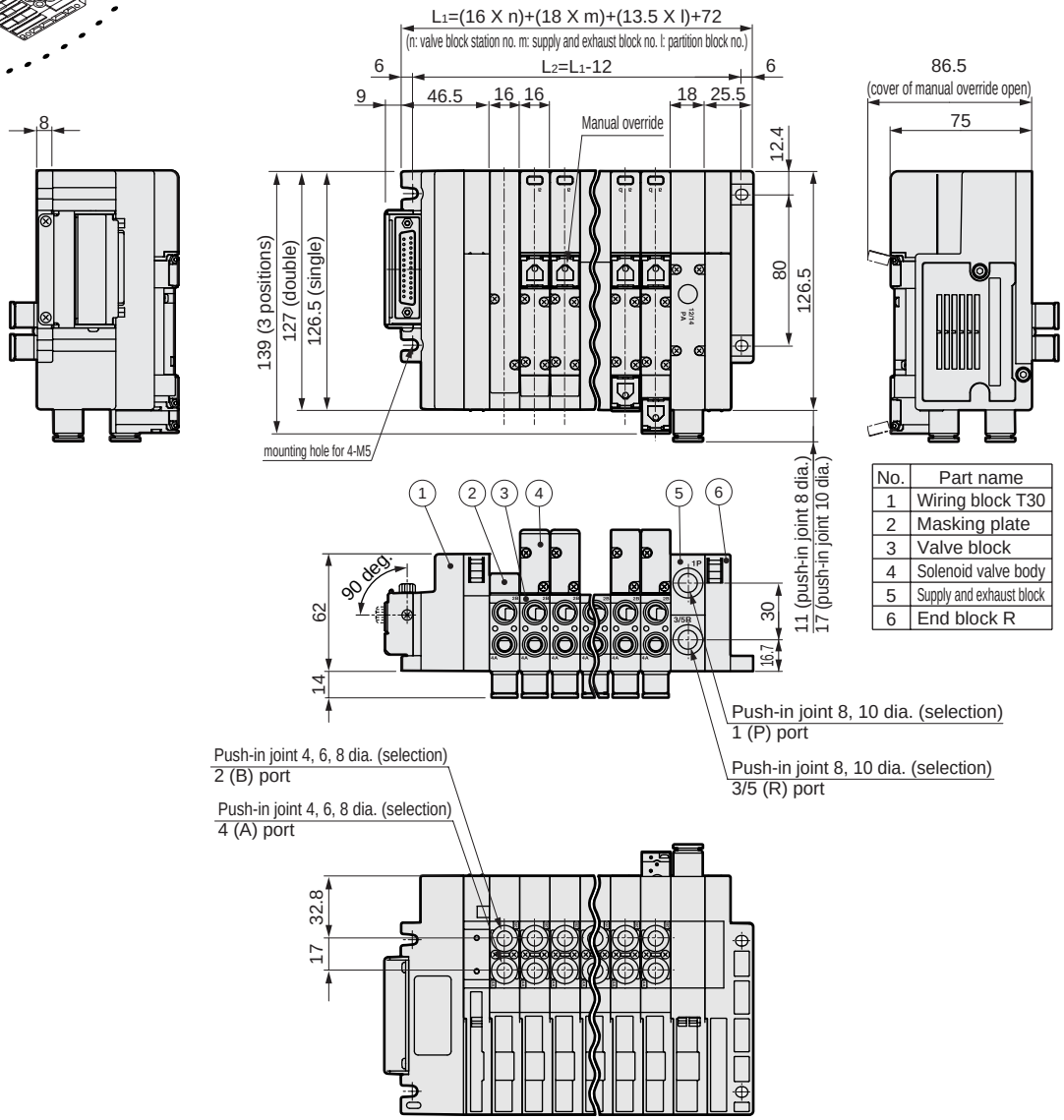


Sub-base back porting: Dimensions

MW4GZ2

● D sub-connector (T30)

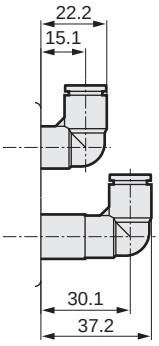




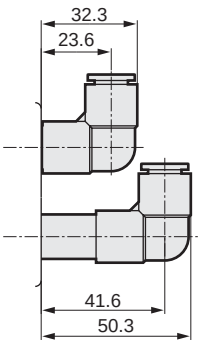
No.	Part name
1	Wiring block T30
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



● 10 dia. (CL10)

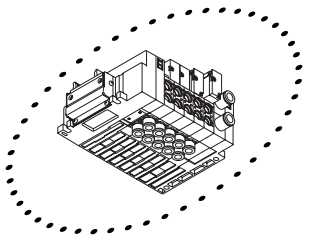


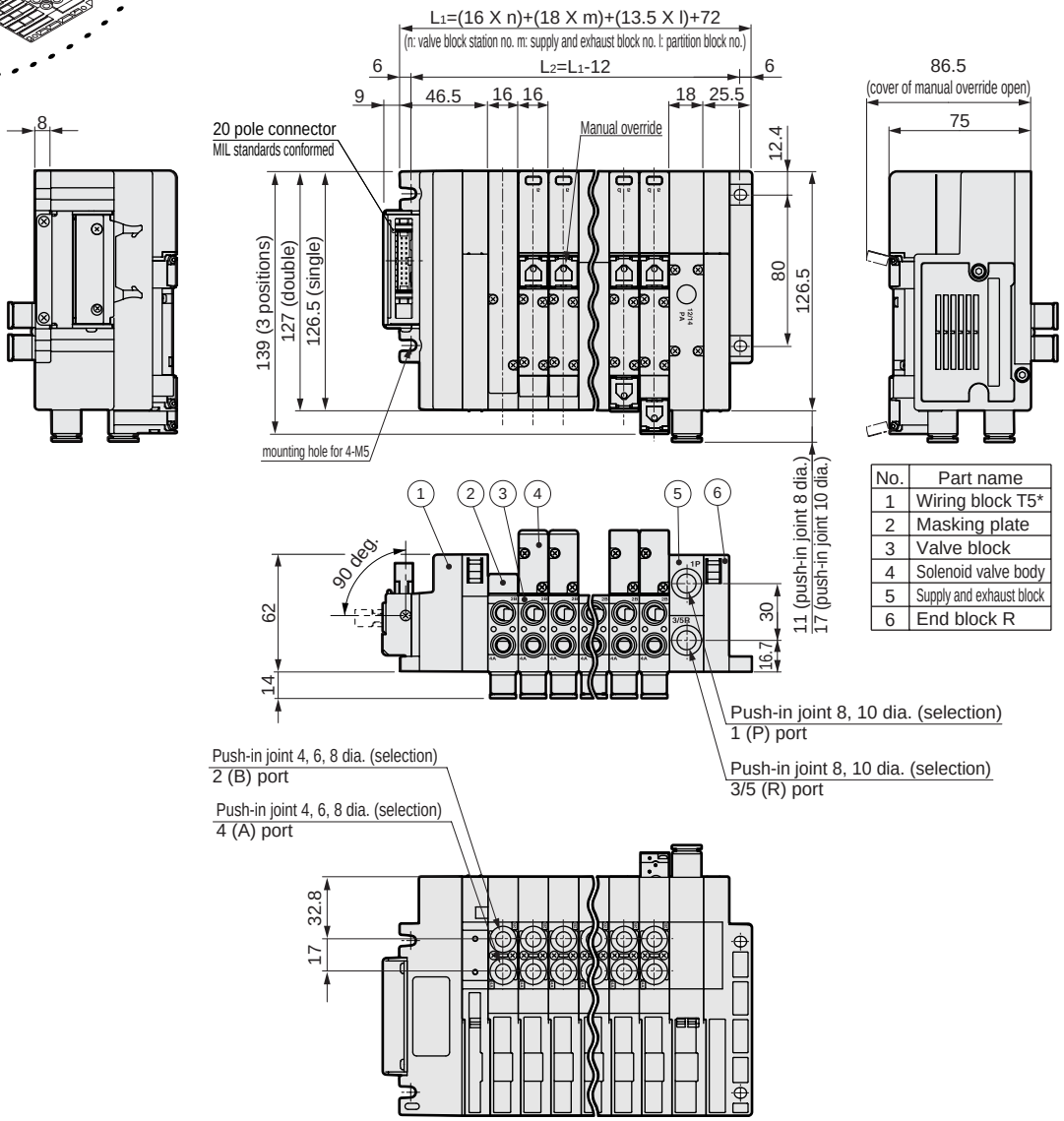
Sub-base back porting: Dimensions

MW4GZ2

● Flat cable connector (T5*)

* This drawing shows T51.
For flat cable connector, T53 is available.
Dimensions are same as T51.

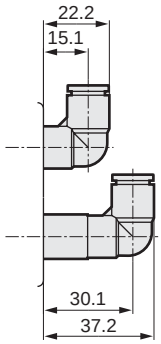




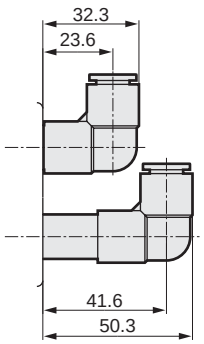
No.	Part name
1	Wiring block T5*
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



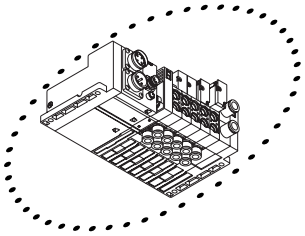
● 10 dia. (CL10)

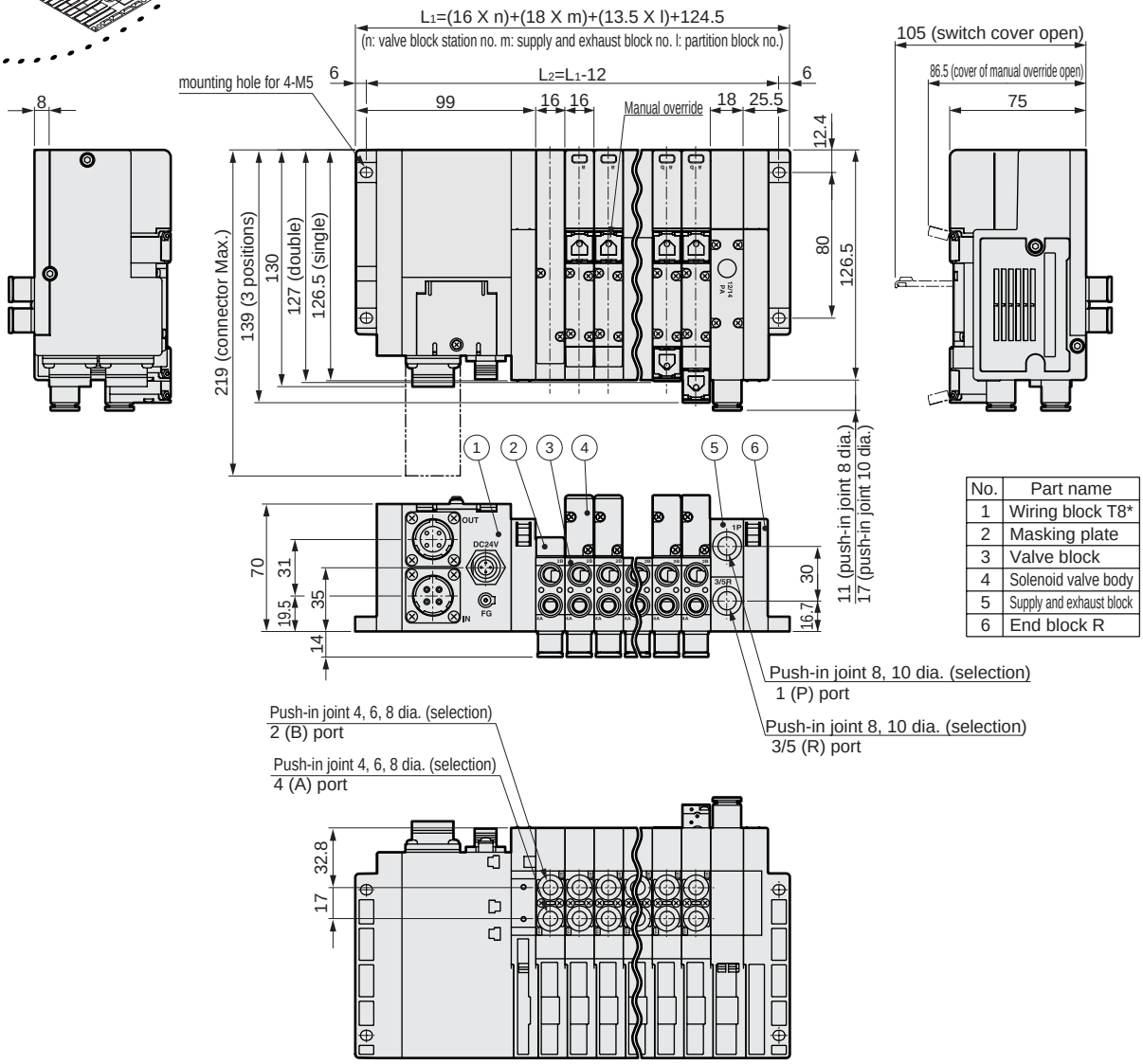


Sub-base back porting: Dimensions

MW4GZ2

● Serial transmission CC-Link (T8G*)

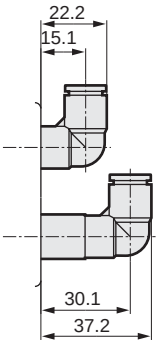




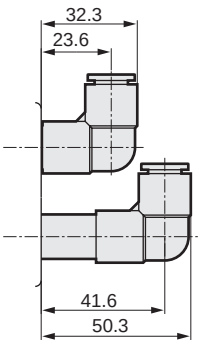
No.	Part name
1	Wiring block T8*
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



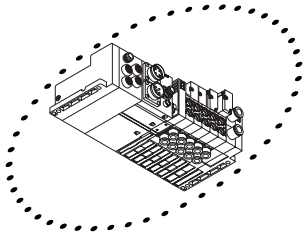
● 10 dia. (CL10)

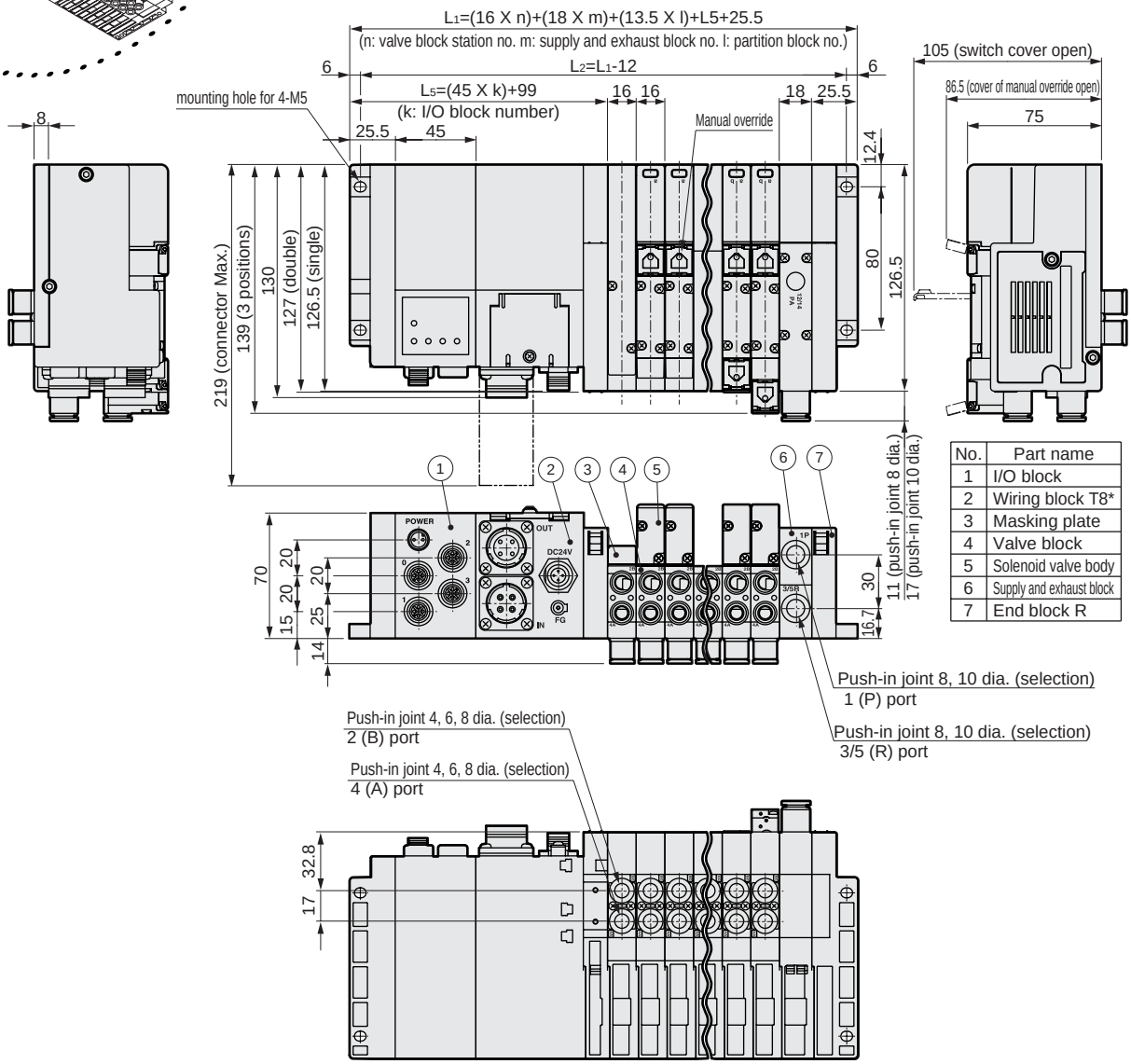


Sub-base back porting: Dimensions

MW4GZ2

● Serial transmission CC-Link (T8G*)+I/O block

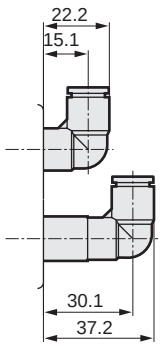




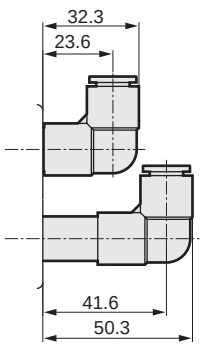
No.	Part name
1	I/O block
2	Wiring block T8*
3	Masking plate
4	Valve block
5	Solenoid valve body
6	Supply and exhaust block
7	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



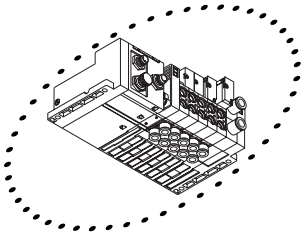
● 10 dia. (CL10)

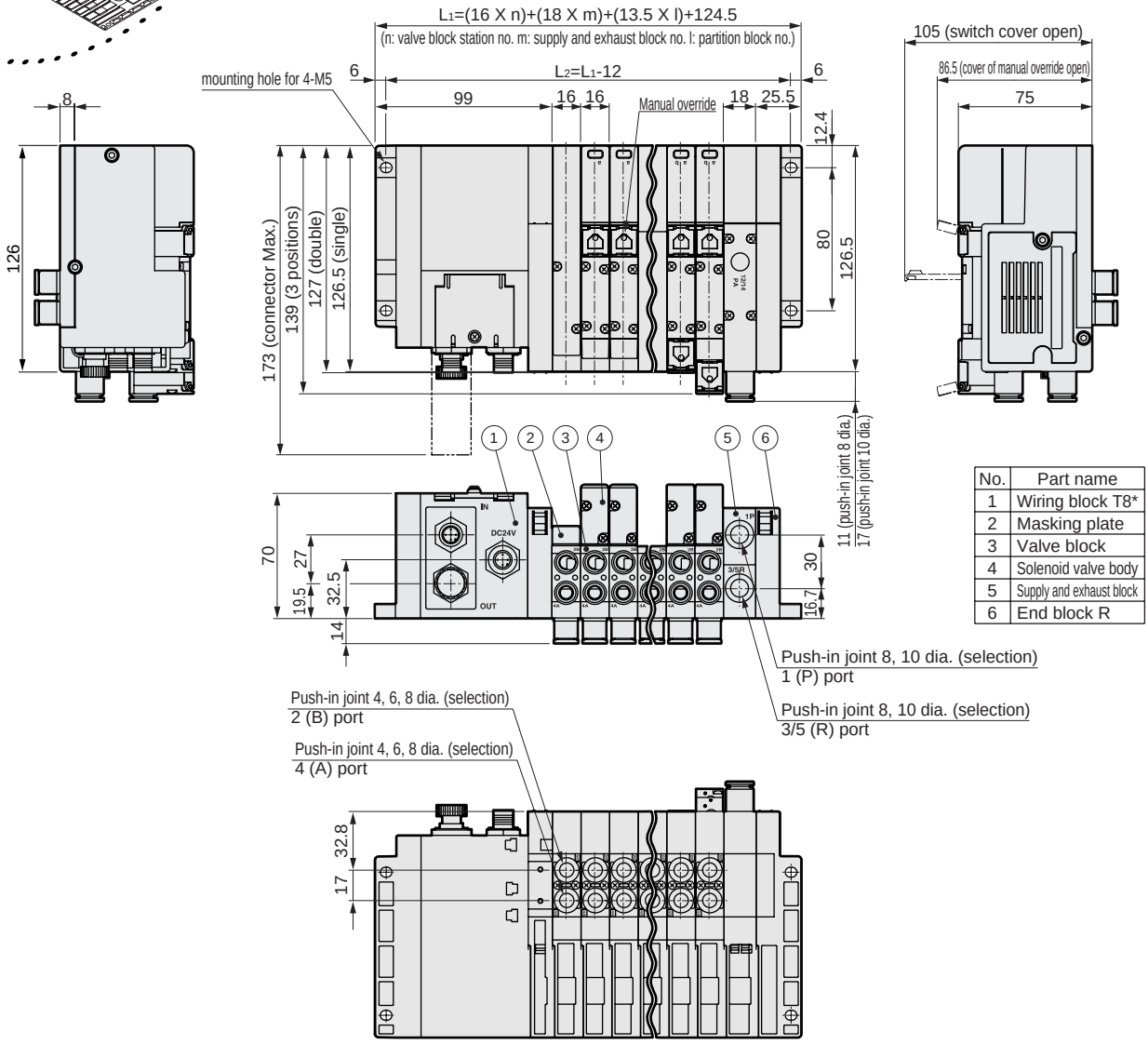


Sub-base back porting: Dimensions

MW4GZ2

● Serial transmission DeviceNet (T8D*)

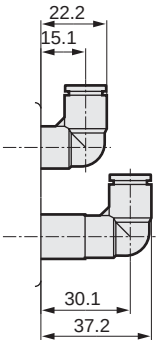




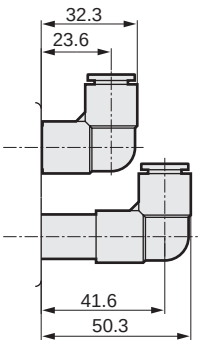
No.	Part name
1	Wiring block T8*
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



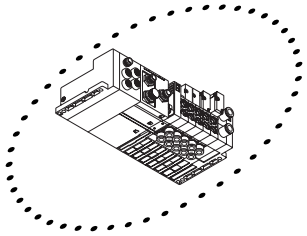
● 10 dia. (CL10)

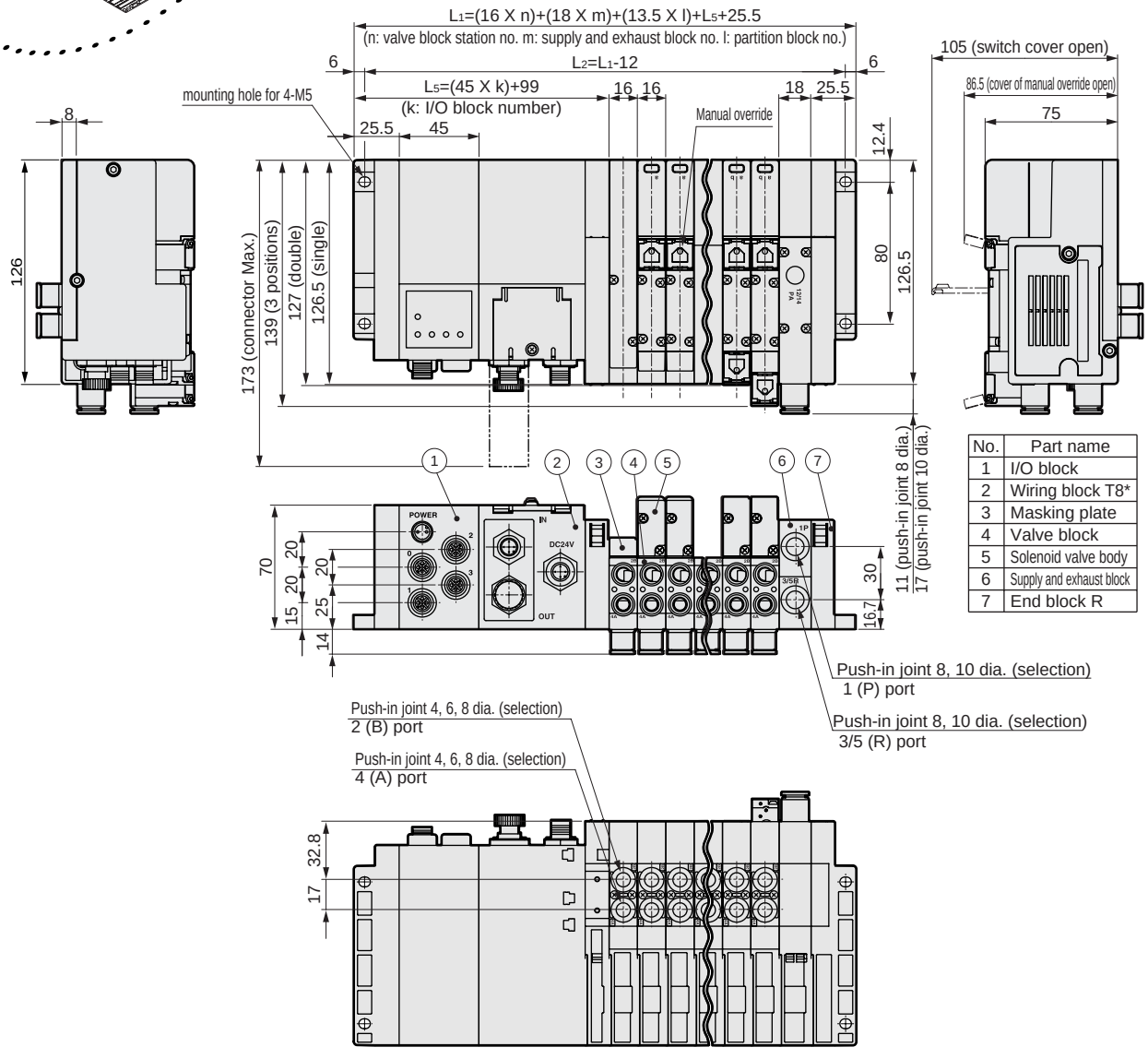


Sub-base back porting: Dimensions

MW4GZ2

● Serial transmission DeviceNet (T8D*)+I/O block

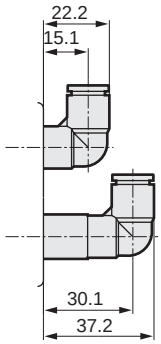




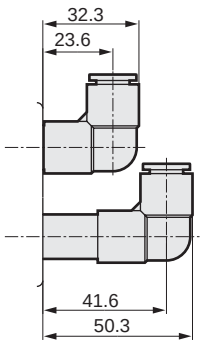
No.	Part name
1	I/O block
2	Wiring block T8*
3	Masking plate
4	Valve block
5	Solenoid valve body
6	Supply and exhaust block
7	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



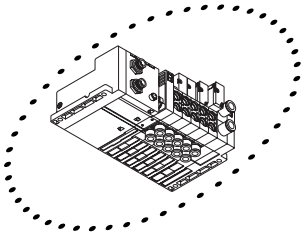
● 10 dia. (CL10)

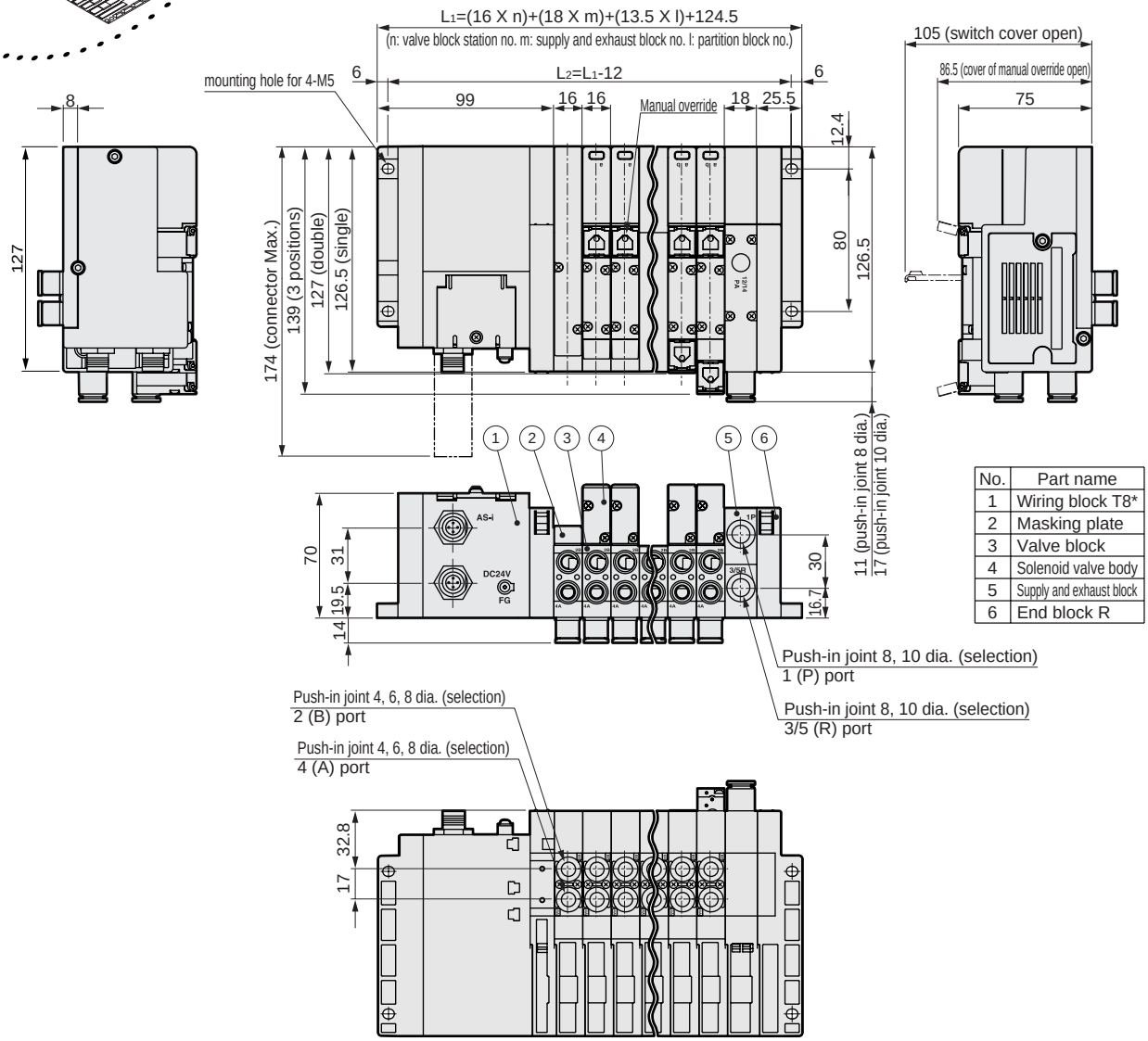


Sub-base back porting: Dimensions

MW4GZ2

● Serial transmission AS-i (T8M*)

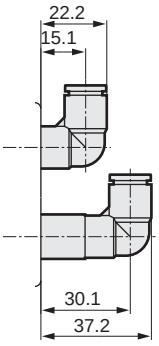




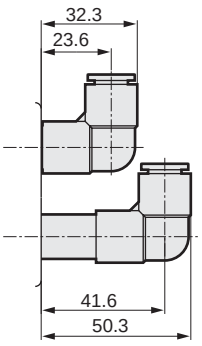
No.	Part name
1	Wiring block T8*
2	Masking plate
3	Valve block
4	Solenoid valve body
5	Supply and exhaust block
6	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



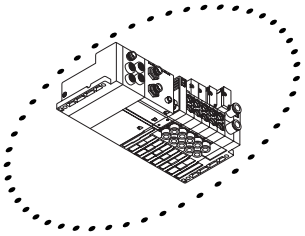
● 10 dia. (CL10)

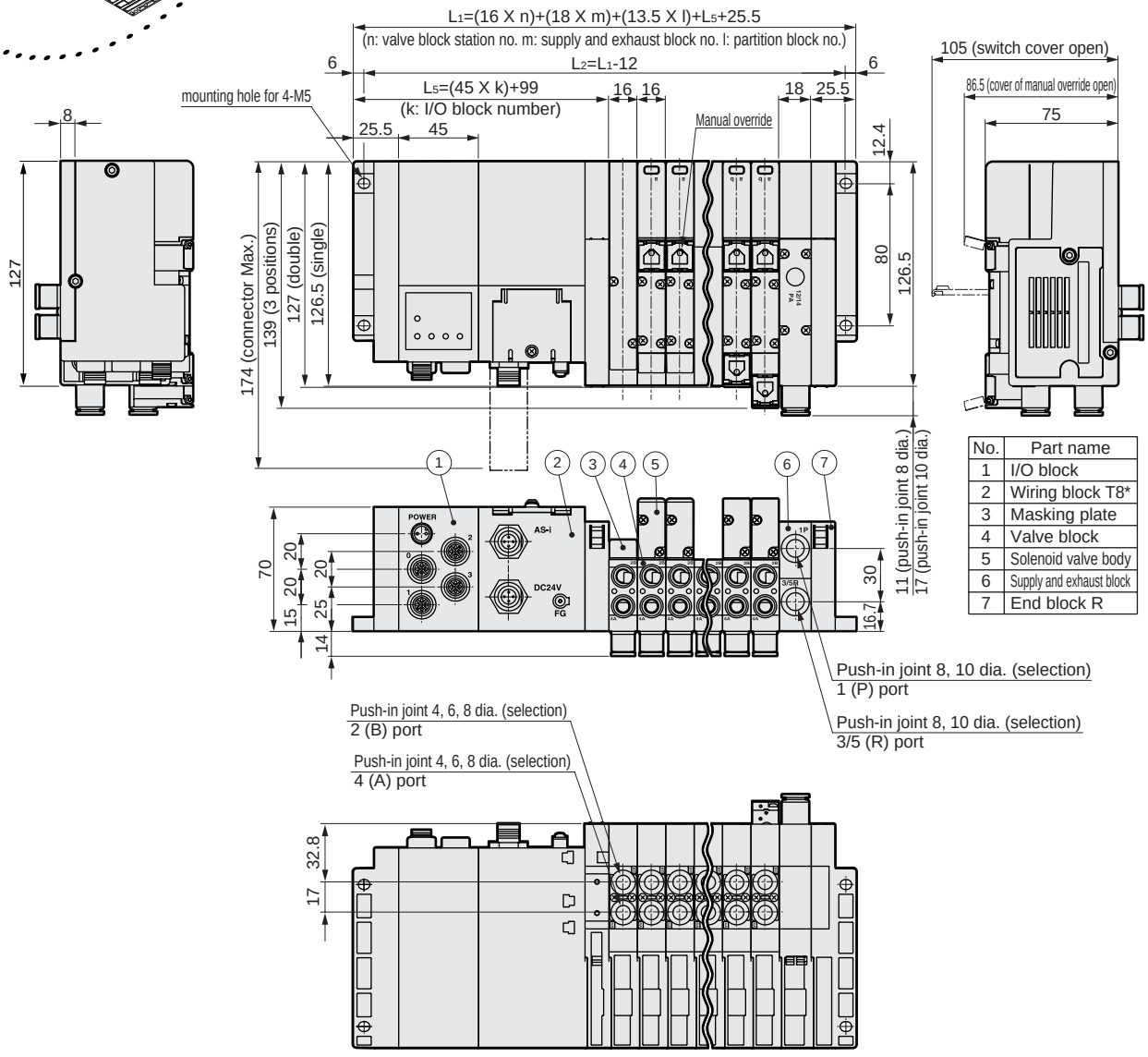


Sub-base back porting: Dimensions

MW4GZ2

● Serial transmission AS-i (T8M*)+I/O block

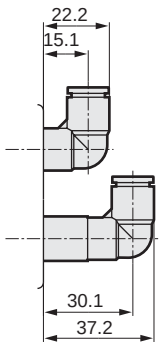




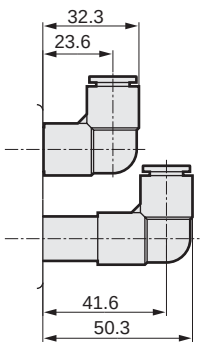
No.	Part name
1	I/O block
2	Wiring block T8*
3	Masking plate
4	Valve block
5	Solenoid valve body
6	Supply and exhaust block
7	End block R

● Radial push-in joint for supply and exhaust block (upward)

● 8 dia. (CL8)



● 10 dia. (CL10)



Block manifold: Configurations

Due to flexible configuration, easy increase and decrease of station no. and maintenance, etc., are achieved.

●Valve block with solenoid valve

(1) The required type of solenoid valve with required station no. can be positioned.
However, station no. is determined per electric wire type. (Refer to P.5 and P.21.).
(2) Viewed from the joint, a solenoid valve number is called as station 1.2.3... from the left.

●Supply and exhaust block

(1) Required number can be positioned in the connecting section of each block.
(2) Set type for internal pilot or external pilot per type of a solenoid valve.
(3) If of multi-pressure specifications, partition section must be checked before installation.

●End block

(1) Install the block in the opposite side of a wiring block.

●Partition block

(1) If of multi-pressure specifications, combining supply and exhaust block, install the block.

●Manifold base

(1) Discrete manifold base can be purchased. However, some items are not available depended with specifications.
(If of manifold base only, no manifold specification sheet is required.)

●I/O block

(1) Required station no. of I/O block can be positioned.
However, station no. is determined by a set point number of serial transmission slave unit.
(2) I/O block is called as station 1.2.3... from serial transmission slave unit side.
(3) If both of input block/output block is installed, the output block is to be left. (Viewed from the joint).

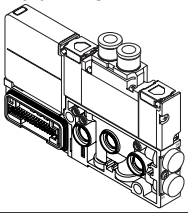
Block manifold configuration

Piping section

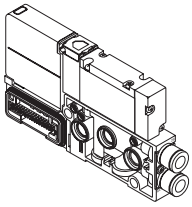
Piping block

Ⓐ Discrete valve block with solenoid valve

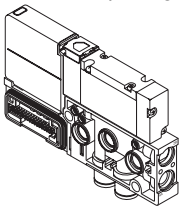
-Body porting



-Sub-base side porting

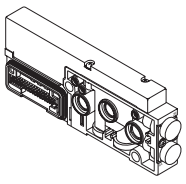


-Sub-base back porting

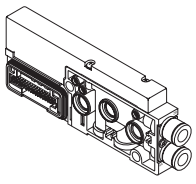


Ⓑ Discrete valve block with masking plate

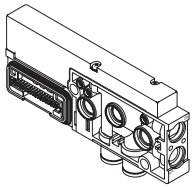
-Body porting



-Sub-base side porting

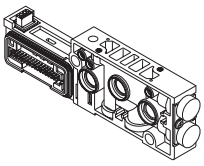


-Sub-base back porting

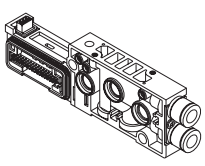


Ⓒ Discrete valve block

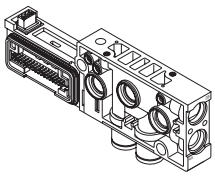
-Body porting



-Sub-base side porting



-Sub-base back porting



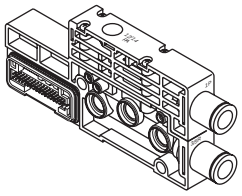
Block manifold configuration

Piping section

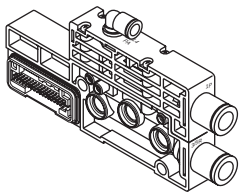
Piping block

Ⓓ Supply and exhaust block

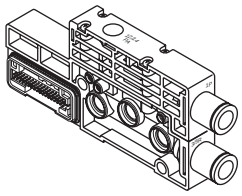
-For internal pilot (Q)



-For external pilot (QK)

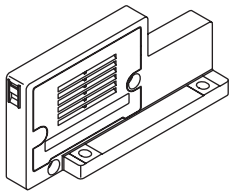


-For multi-pressure (QZ)

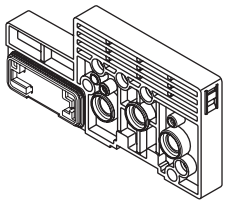


Ⓔ End block

-Right

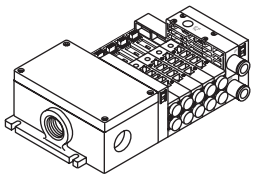


Ⓕ Partition block

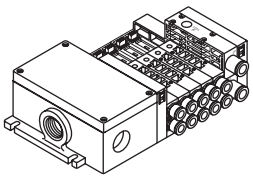


Ⓖ Manifold base

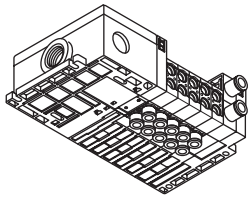
-Body porting



-Sub-base side porting



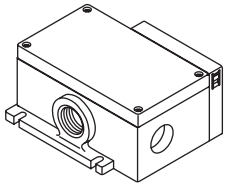
-Sub-base back porting



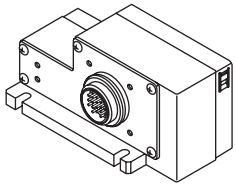
Wiring section

Wiring block

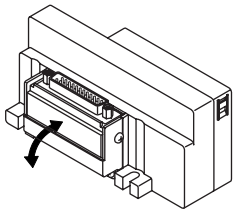
Ⓗ Common gland block



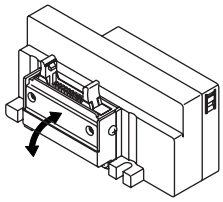
Ⓘ Multi connector block



Ⓙ D sub-connector

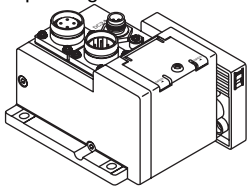


Ⓚ Flat cable connector

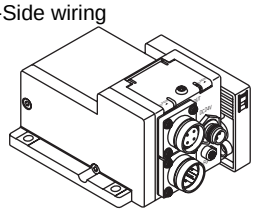


Ⓛ Serial transmission block

-Top wiring

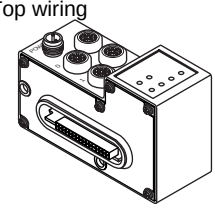


-Side wiring

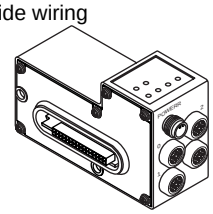


Ⓜ I/O block

-Top wiring



-Side wiring



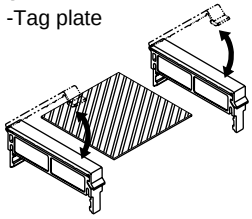
*When ordering manifold, an end block is equipped as standard on the left side.

Related products

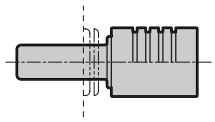
Related products

Ⓝ Related products

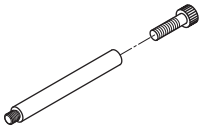
-Tag plate



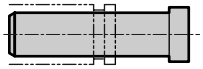
-Silencer



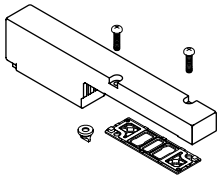
-Tie rod



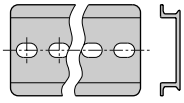
-Blanking plug



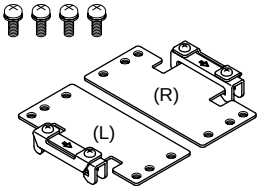
-Masking plate kit



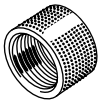
-DIN rail



-DIN rail bracket kit

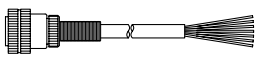


-Water proof cap



-Water proof plug

-Cable with connector
(Wiring method T20)



-D sub-connector attached Cable
(Wiring method T30)

Piping section

A. discrete valve block with solenoid valve * If arranged for expanding manifold, tie rods (2 pieces) are attached.

The solenoid valve body and valve blocks (separate resin bases) are assembled into the block.
Refer to P.7 to 8 and P.23 to 24 for selection guide.

B. discrete valve block with masking plate * If arranged for expanding manifold, tie rods (2 pieces) are attached.

NW4GA2 - MPS ——○
NW4GB2 - MPD - C4 - ○F
NW4GZ2 - MPD - C4 - ○F

Model no. Ⓐ Type Ⓑ Connection Port size Ⓒ Electric connection Ⓓ Option

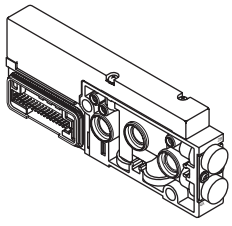
Ⓐ Type		Ⓑ Port size (Note 1)		Ⓒ Electric connection (Note 2)		Ⓓ Option	
MPS	Standard wiring (single)	C4	4 dia. push-in joint	Blank	Connector relay circuit board spec. for DC	Blank	No option
MPD	Double wiring (single)/ Double/3 position	C6	6 dia. push-in joint	2 to 8	Cable for AC Refer to P. 50 for length.	F	A/B port filter integrated
		C8	8 dia. push-in joint				
		C4NC	Port A/4 dia. push-in joint and port B/plug				
		C4NO	Port A/plug and port B/4 dia. push-in joint				
		C6NC	Port A/6 dia. push-in joint and port B/plug				
		C6NO	Port A/plug and port B/6 dia. push-in joint				
		C8NC	Port A/8 dia. push-in joint and port B/plug				
		C8NO	Port A/plug and port B/8 dia. push-in joint				
		CL6	6 dia. push-in joint (upward)				
		CL8	8 dia. push-in joint (upward)				
		CL6NC	Port A/6 dia. push-in joint (upward) and port B/plug				
		CL6NO	Port A/plug and port B/6 dia. push-in joint (upward)				
		CL8NC	Port A/8 dia. push-in joint (upward) port B/plug				
		CL8NO	Port A/plug and port B/8 dia. push-in joint (upward)				

Note 2 If of DC voltage, the symbol is blank, while if of AC, cable length of socket assembly must be specified. However when ordering, if the manifold specification sheet is filled out, cable length is not required.
Socket assembly is wired for AC double solenoid.

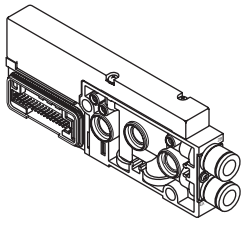
Note 1 Port size shows A/B port size.
The A or B port plug specifications (*NC/NO) are available only for 2 position single.
CL* radial push-in joint (upward) is available for 2 position single and double.
Also, port A: long elbow joint is provided, while port B: short elbow joint provided.
If CL*NC/NO is specified, short elbow joint will be provided.

<DC>

NW4GA2-MPS



NW4GB2-MPS-C8



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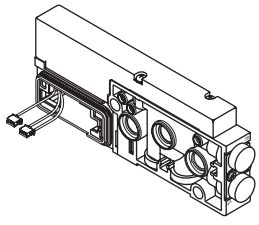
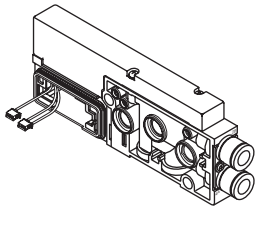
NW4GA2-MPS-2



NW4GB2-MPS-C8-2



Piping section

C. discrete valve block (discrete only) *When ordering for expanding manifold, tie rods (two pieces) are attached.

NW4GA2 - V1 ——— ○
NW4GB2 - V2 - C4 - ○ F
NW4GZ2 - V2 - C4 - ○ F

Model no. Ⓐ Type Ⓑ Connection Port size Ⓒ Electric connection Ⓓ Option

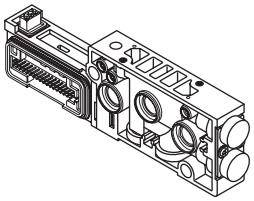
Ⓐ Type		Ⓑ Port size (Note 1)		Ⓒ Electric connection (Note 2)		Ⓓ Option	
V1	Standard wiring (single)	C4	4 dia. push-in joint	Blank	Connector relay circuit board spec. for DC	Blank	No option
V2	Double wiring (single)/ Double/3 position	C6	6 dia. push-in joint	2	Cable for AC	F	A/B port filter integrated
		C8	8 dia. push-in joint	to	Refer to the table below for		
		C4NC	Port A/4 dia. push-in joint and port B/plug	8	the length.		
		C4NO	Port A/plug and port B/4 dia. push-in joint				
		C6NC	Port A/6 dia. push-in joint and port B/plug				
		C6NO	Port A/plug and port B/6 dia. push-in joint				
		C8NC	Port A/8 dia. push-in joint and port B/plug				
		C8NO	Port A/plug and port B/8 dia. push-in joint				
		CL6	6 dia. push-in joint (upward)				
		CL8	8 dia. push-in joint (upward)				
		CL6NC	Port A/6 dia. push-in joint (upward) and port B/plug				
		CL6NO	Port A/plug and port B/6 dia. push-in joint (upward)				
		CL8NC	Port A/8 dia. push-in joint (upward) port B/plug				
		CL8NO	Port A/plug and port B/8 dia. push-in joint (upward)				

Note 2 If of DC voltage, the symbol must be blank, while if of AC, cable length of socket assembly must be specified.
Socket assembly is wired for AC double solenoid.

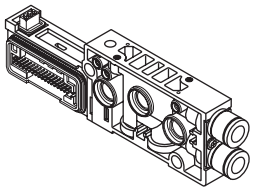
Note 1 Port size shows A/B port size.
The A or B port plug specifications (*NC/NO) are available only for 2 position single.
CL* radial push-in joint (upward) is available for 2 position single and double.
Also, port A: long elbow joint is provided, while port B: short elbow joint provided.
If CL*NC/NO is specified, short elbow joint will be provided.

<DC>

NW4GA2-V1



NW4GB2-V1-C8



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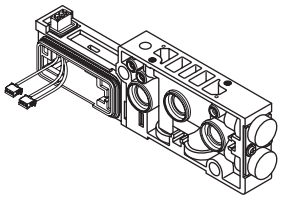
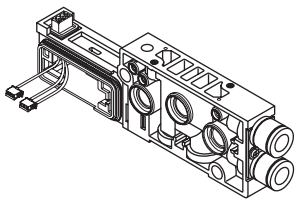
NW4GA2-V1-2



NW4GB2-V1-C8-2



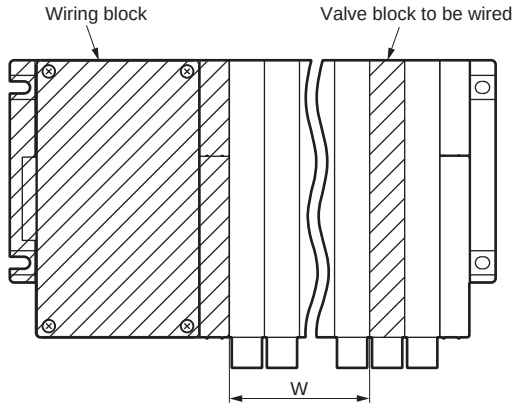
Valve block cable length for AC

If total length of supply and exhaust block partition blocks between wiring blocks from a valve block to be wired is 63mm and over, (e.g. 2 stations of supply and exhaust block +2 stations of partition blocks), calculate length W, then specify the longer lead wire near to the valve.
W=(23.5 X n)+(18 X m)+(13.5 X l)+230
n: valve block no. m: supply and exhaust block no. l: partition block no.

If W exceeds 610mm, consult with CKD.

Selection No.	Cable length
2	Socket assembly for 1 to 2 station (cable length 290mm) AC
3	Socket assembly for 3 to 4 stations (cable length 330mm) AC
4	Socket assembly for 5 to 6 stations (cable length 380mm) AC
5	Socket assembly for 7 to 8 stations (cable length 430mm) AC
6	Socket assembly for 9 to 10 stations (cable length 480mm) AC
7	Socket assembly for 11 to 14 stations (cable length 530mm) AC
8	Socket assembly for 15 to 18 stations (cable length 610mm) AC

Fig. 1



Piping section

Some configurations may pose problems, so functions of each block must be sufficiently understood to select.

D. supply and exhaust block * When ordering for expanding manifold, tie rods (2 pieces) are attached.

Supply and exhaust block can be installed in any location adjacent to a valve block.
If larger supply and exhaust flow rate is required, install 2 units and over since quantity is not limited.
P port has an integrated filter to prevent foreign material from entraining.

NW4G2 - Q - 8 X - SA - ○

Model no. Ⓐ Type Ⓑ Connection Port size Ⓒ Exhaust Method Ⓓ Option (Partition type) Ⓔ Voltage

Ⓐ Type (Note 1)		Ⓑ Port size (port P/R) (Note 2)		Ⓒ Exhaust method (Note 3)		Ⓓ Option (partition type) (Note 4)		Ⓔ Voltage	
Q	Internal pilot	8	8 dia. push-in joint	Blank	Common exhaust	Blank	Without partition	Blank	Connector relay circuit board for DC
QK	External pilot	8L	8 dia. push-in joint (upward)	X	Atmospheric release	SA	P/R/PA/PR not go	AC	No connector relay circuit board for AC
QZ	Multi-pressure circuit	10	10 dia. push-in joint			S	P/R not go, PA/PR go		
QKZ	External pilot (PA/PR separation)	10L	10 dia. push-in joint (upward)						

Note 1 QZ is not available when using as discrete unit. Always combine with another type (Q/QK/QKZ) to use.

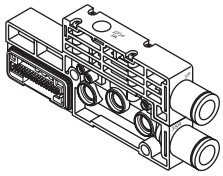
Note 2 P port has an integrated filter to prevent foreign material from entraining.

Note 3 Atmospheric release type (X) is evacuated from an end block. If of X, use atmospheric release type (EX) for the end block.

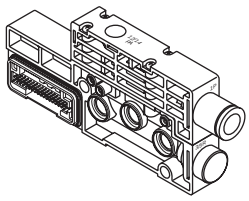
Note 4 If a partition is installed in supply and exhaust block, indicate this. In mix manifold including multi-pressure use, etc., the station width will be reduced. Indicate the installation location in the manifold specifications sheet as locating the partition side on the left of supply and exhaust block while the supply and exhaust side on the right.

<DC>

NW4G2-Q-10

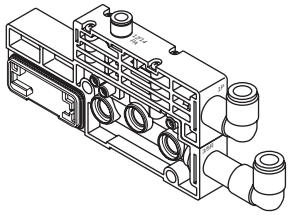


NW4G2-Q-10X

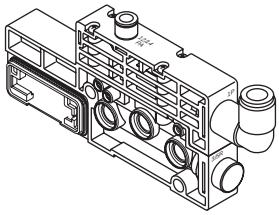


<AC>

NW4G2-QK-10L-AC



NW4G2-QK-10LX-AC



* Refer to P.52 for the circuit diagram.

E. end block

Atmospheric release type has an integrated muffler.

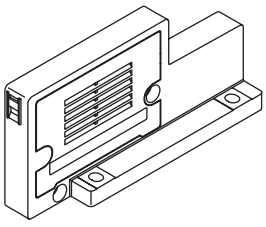
NW4G2 - E R

Model no. Ⓐ Type

Ⓐ Type (Note 1)	
E	Common exhaust
EX	Atmospheric release

Note 1 Atmospheric release type (EX) has an integrated muffler.

NW4G2-ER



F. partition block * When ordering for expanding manifold, tie rods (2 pieces) are attached.

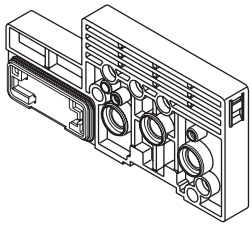
NW4G2 - SA - ○

Model no. Ⓐ Type Ⓑ Voltage

Ⓐ Type (Note 1)		Ⓑ Voltage	
SA	P/R/PA/PR not go	Blank	Connector relay circuit board for DC
S	P/R not go, PA/PR go	AC	No connector relay circuit board for AC

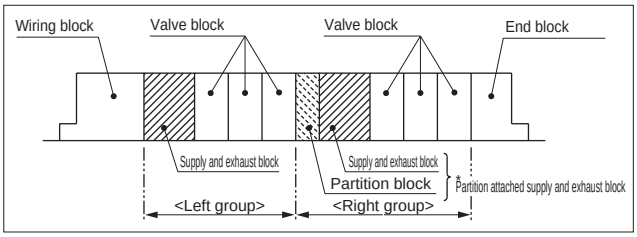
Note 1 In any block excluding SA, the PA/PR passage of pilot pressure is not closed. When selecting system configuration, care must be taken.

NW4G2-S



Piping section

-Notes when selecting manifold configuration



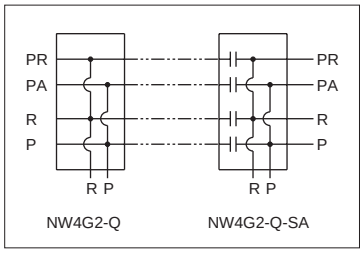
* The difference between internal pilot/external pilot operated type is decided by a selection of supply and exhaust block. Valve blocks are same.
* Combining partition blocks and supply and exhaust blocks, a mix manifold including multi-pressure use, etc., is available.
* Using the supply and exhaust block with partition that a partition block and a supply and exhaust block are integrated into the same block, the station width will be reduced.
* Viewed from piping port, install the supply and exhaust block with partition as partition side on the left while supply and exhaust side on the right.

-System configuration with combining blocks

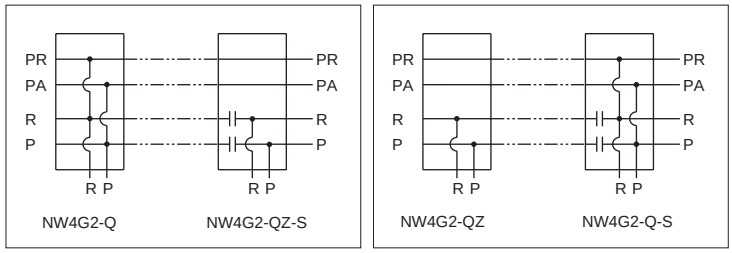
* Combining partition block and supply and exhaust blocks or supply and exhaust blocks with partition, various pneumatic systems can be configured. Some configuration may pose problems, so functions of each block must be understood before selecting.
* Refer to the following example. (In the example, a supply and exhaust block with partition is used.).

Example of configuration of internal pilot type (circuit symbol)

(1) If supply air pressure is within working pressure range (0.2 to 0.7MPa) and 2 types



(2) If supply air pressure is within working pressure range (0.2 to 0.7MPa), low pressure (0.2MPa or less) or low vacuum.

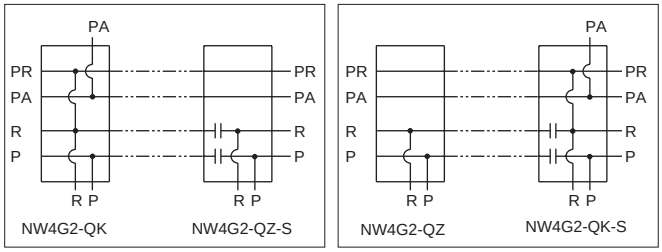


*QZ side is located on low pressure or low vacuum circuit side.
*Port R is located on vacuum side in low vacuum circuit, while port P released or pressurized.

Example of configuration of external pilot type (circuit symbol)

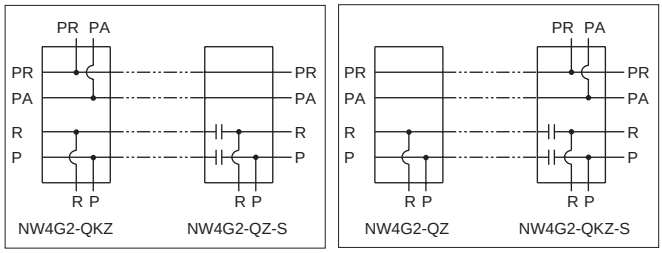
* 0.2 to 0.7Mpa is to be supplied to pilot air supply port (PA).

(3) If supply air pressure is low pressure (0.2MPa or less) or low vacuum.



*QK side is located on low-pressure circuit side, while QZ side on low vacuum circuit side.
*Port R is located on vacuum side in low vacuum circuit, while port P released or pressurized.

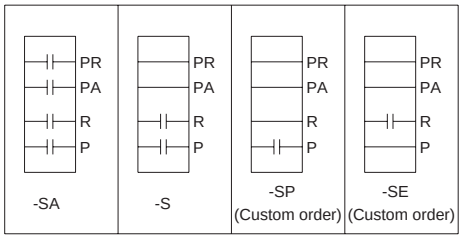
(4) If supply air pressure is low vacuum and 2 types.



*Port R is located on vacuum side in low vacuum circuit, while port P released or pressurized.

-Partition specifications (partition block/supply and exhaust block with partition)

*Consult with CKD for other than standard specifications (-SA and-S). (-SP and-SE).



Piping section

G. manifold base

Discrete manifold base can be purchased. However, some items are not available depended with specifications.
(If of manifold base only, no manifold specification sheet is required.)

Body porting : MW4GA2 — 10 ○ U - T10 W ○ - 5 - 3

Sub-base side porting : MW4GB2 - C8 - 10 ○ U - T10 W ○ - 5 - 3

Sub-base back porting : MW4GZ2 - C8 - 10 ○ U - T10 W ○ - 5 - 3

Model no. Ⓐ Port A/B Port size

Ⓒ Exhaust Method

Ⓑ Port P/R Port size

Ⓓ Port P/R Supply and exhaust position

Ⓔ Reduced wiring

Ⓕ Terminal Connector pin Array

Ⓖ Option

Ⓗ Station no. Ⓘ Voltage

Ⓐ Port A/B Port size		Ⓑ Port P/R Port size		Ⓒ Exhaust Method		Ⓓ Port P/R Supply and exhaust position		Ⓔ Reduced wiring		Ⓕ Terminal connector pin array	
C4	4 dia. push-in joint	8	8 dia. push-in joint	Blank	Common exhaust	D	Left	T10	Common gland (M3 screw left spec.)	W	Double wiring
C6	6 dia. push-in joint	8L	8 dia. radial push-in joint (upward)	X	Atmospheric release	U	Right	T20	Multi connector left spec.	*All of them will be wired for double solenoid.	
C8	8 dia. push-in joint	10	10 dia. push-in joint					T8G1	Serial transmission MITSUBISHI CC-Link (16 points output)		
		10L	10 dia. radial push-in joint (upward)								

*Light/surge suppressor is provided as standard.
*In multi-connector connection specifications, AC100 V is not available.
In serial transmission connection specifications, AC100V and DC12 V are not available.

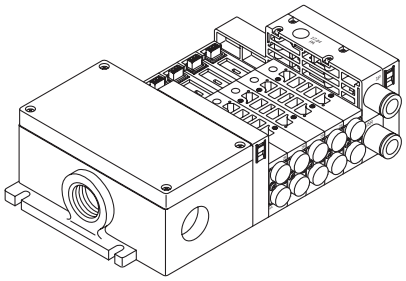
Ⓖ Option		Ⓗ Station no.		Ⓘ Voltage	
Blank	No option	2	Station 2	1	AC100V
K	External pilot	to	to	3	DC24V
F	A/B port filter integrated	9	9 Station	4	DC12V

*Port P has an integrated filter.
*I/O block is not available.

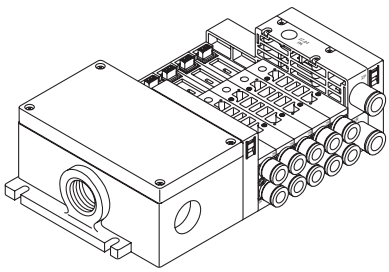
*The specifications may vary depended with the reduced wiring specifications. (P5 and P21) must be checked.

*AC100V is rectified bridge integrated.

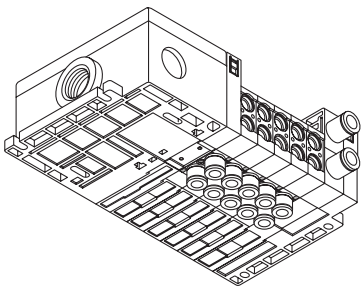
MW4GA2 (body porting)



MW4GB2 (Sub-base side porting)



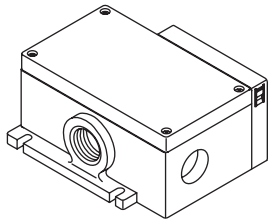
MW4GZ2 (Sub-base back porting)



Wiring section (Wiring block) * Discrete wiring block can not be purchased.

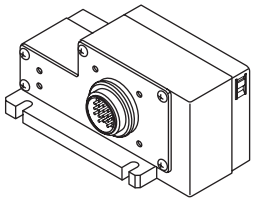
H. common gland block (T10)

NW4G2-T10



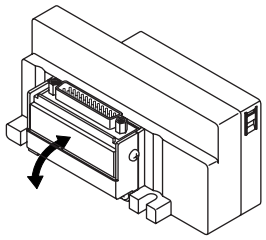
I. multi connector block (T20)

NW4G2-T20



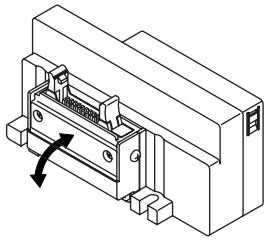
J. D sub-connector (T30)

NW4G2-T30



K. flat cable connector (T5*)

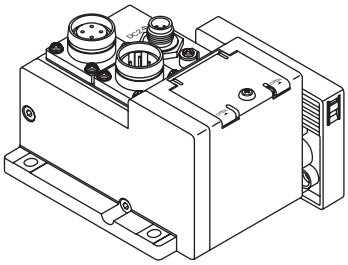
NW4G2-T5*



L. serial transmission block (when ordering manifold, if I/O block is combined, an end block is equipped as standard on the left side of I/O block.)

-CC-Link (T8G*)

NW4GA2-T8G*

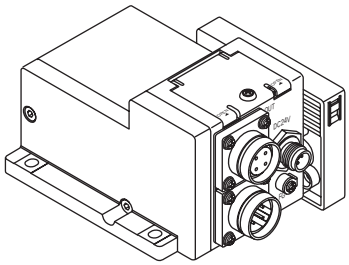


NW4GA2 - T8G1

Ⓐ Type

Ⓐ Type	
T8G1	16 points output
T8G2	32 points output
T8G7	16 points input/16 points output

NW4GB2-T8G*



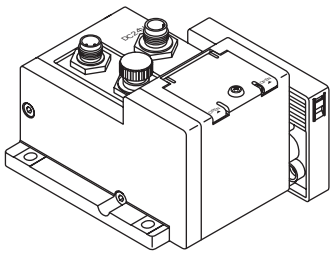
NW4GB2 - T8G1

Ⓐ Type

Ⓐ Type	
T8G1	16 points output
T8G2	32 points output
T8G7	16 points input/16 points output

-Device Net (T8D*)

NW4GA2-T8D*

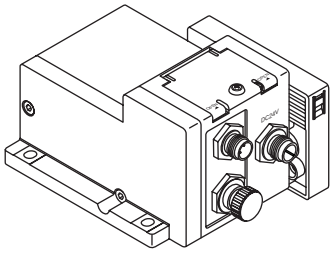


NW4GA2 - T8D1

Ⓐ Type

Ⓐ Type	
T8D1	16 points output
T8D2	32 points output
T8D7	16 points input/16 points output

NW4GB2-T8D*



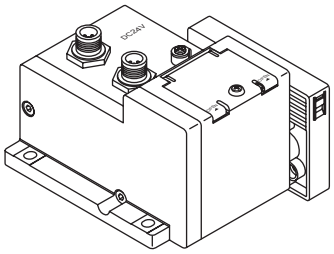
NW4GB2 - T8D1

Ⓐ Type

Ⓐ Type	
T8D1	16 points output
T8D2	32 points output
T8D7	16 points input/16 points output

-AS-i (T8M*)

NW4GA2-T8M*

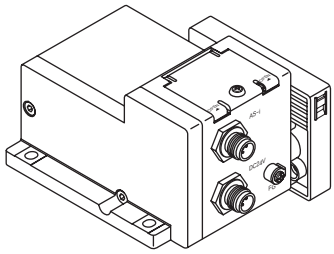


NW4GA2 - T8M6

Ⓐ Type

Ⓐ Type	
T8MA	4 points input/4 points output
T8M6	8 points input/8 points output

NW4GB2-T8M*



NW4GB2 - T8M6

Ⓐ Type

Ⓐ Type	
T8MA	4 points input/4 points output
T8M6	8 points input/8 points output

Block manifold: Related products

M. I/O block * When ordering for expanding manifold, tie rods (2 pieces) are attached.

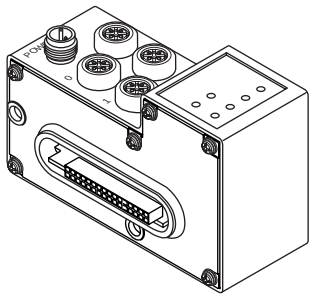
Top wiring: NW4GA2 - IN - N - K
Side wiring: NW4GB2 - OUT - N - B

- A Input/output classification
- B I/O format
- C Type of power supply

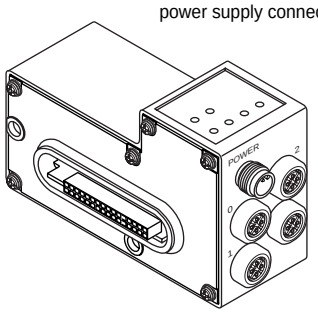
A Input/output classification		B I/O format		C Type of power supply	
IN	Input	N	Sink	K	Common with serial transmission slave unit *1 and *2
OUT	Output	P	Sauce	B	External power

*1 Output block is only for external power (B) .
*2 When common with serial transmission slave unit (K) is selected, water proof cap is equipped on power supply connector as standard.

NW4GA2-$^{IN}_{OUT}$-$^{N}_{P}$-$^{K}_{B}$

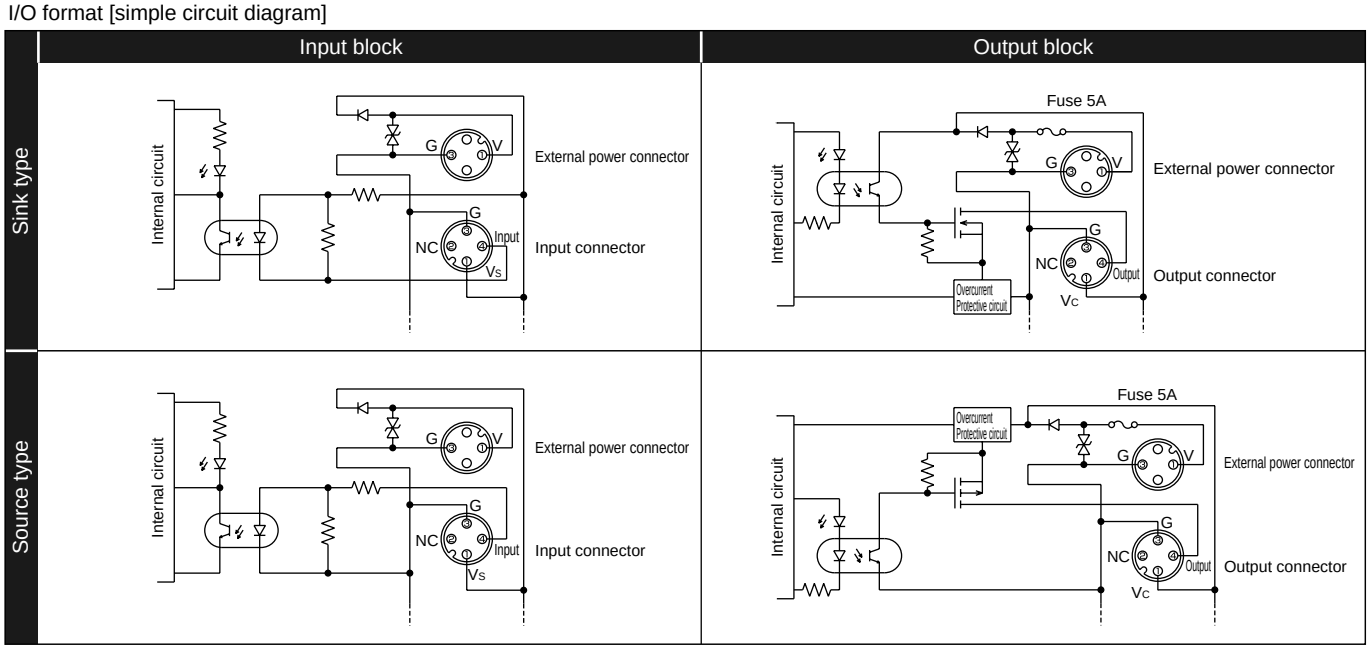


NW4GB2-$^{IN}_{OUT}$-$^{N}_{P}$-$^{K}_{B}$



*When ordering manifold, if I/O block is combined, an end block is equipped as standard on the left side.

I/O format [simple circuit diagram]



*Refer to P.79 for wiring method.

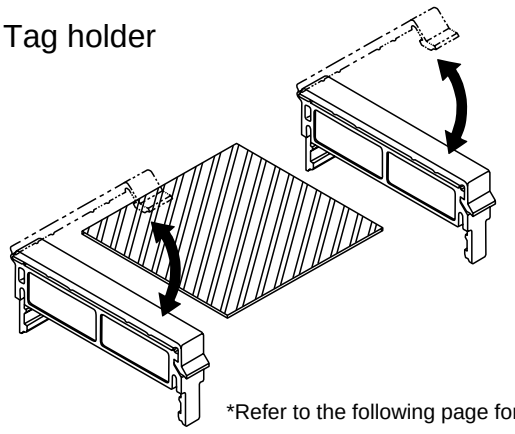
Related products

● Tag plate This will be shipped attaching to the manifold body.
If required, indicate a circle in the manifold specified tag plate section on P.91 to P.93.

[Tag holder]

N4G2 - Tag holder

- A Model no.: N4G2 (2 pieces/set)



[Tag plate]

N4G2 - Tag plate A - Length

A Model no.	B Type *1		C Length (mm) *2
N4G2	Tag plate A	4GA2	200
	Tag plate B	4G$^{B}_{Z}$2	300
			400

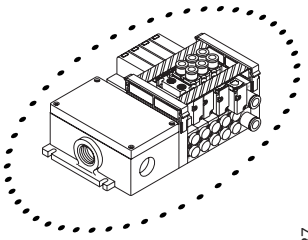
*1: If of MW4GZ2, select the tag plate B.
*2: 3 types of 200, 300 and 400mm long are available, so cut the plate according to the product length.

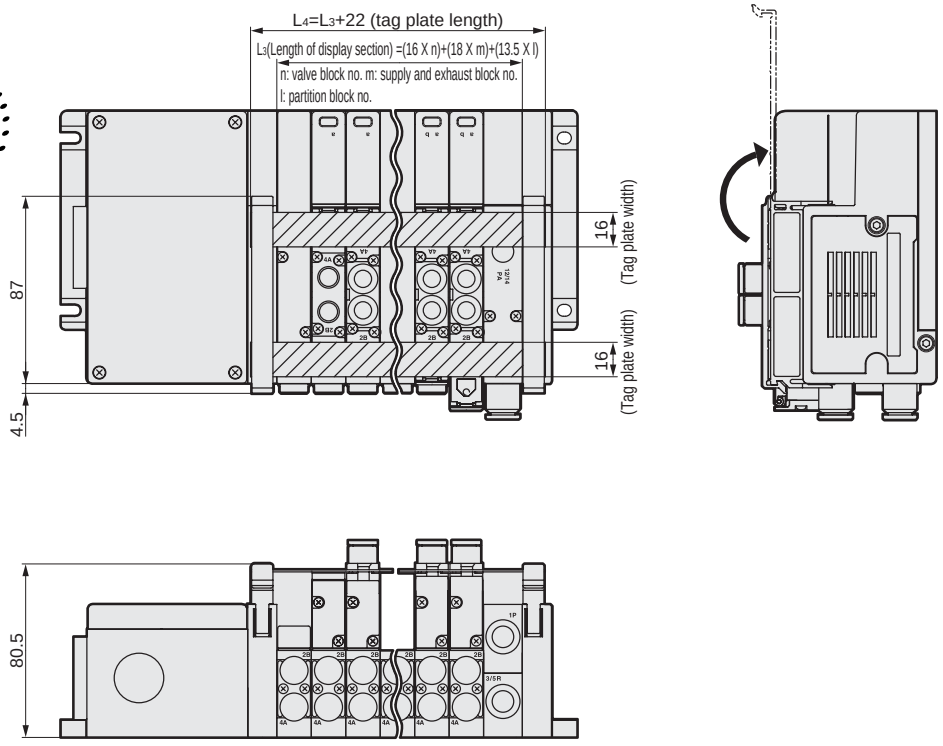
*Refer to the following page for dimensions.

● Tag plate

MW4GA2

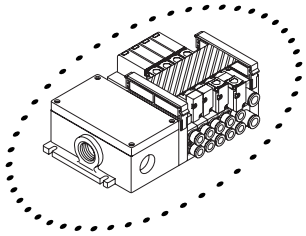
● Tag plate (TAG)

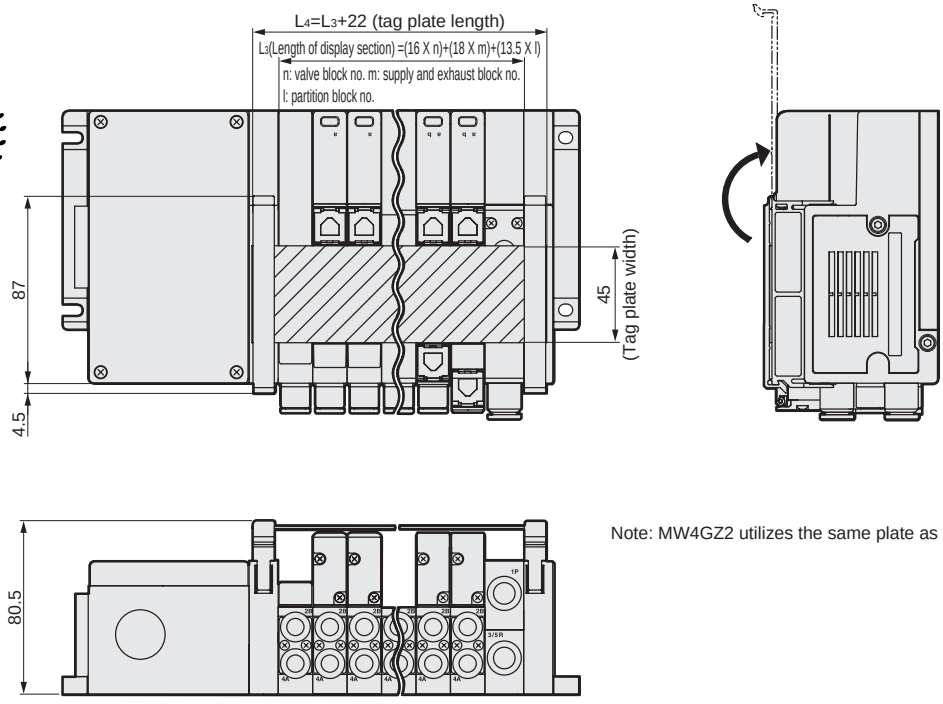




MW4G$^{B}_{Z}$2

● Tag plate (TAG)





Note: MW4GZ2 utilizes the same plate as MW4GB2.

Table 1: equation in L3 (length of display section)

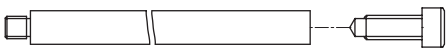
$L_3=(16 \times n)+(18 \times m)+(13.5 \times l)$

n: valve block no.
m: supply and exhaust block no.
l: partition block No.

Block manifold: Related products

Related products Tie rod, silencer, blanking plug, masking plate kit, DIN rail and DIN rail bracket kit

-Tie rod

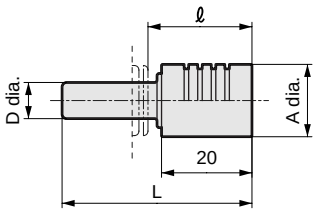


W4G2 - TR - V1

Model no. Ⓐ Type

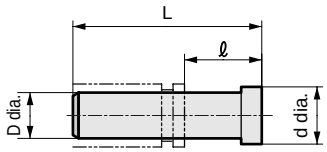
Ⓐ Type	
V1	Valve block for 1 station (2 pieces)
Q	For supply and exhaust block (2 pieces)
S	For partition block (2 pieces)
M	For I/O block (2 pieces)

-Silencer



Model no.	D	L	ℓ	A
SLW-H8	8 dia.	42	23	16
SLW-H10	10 dia.	53	34	20

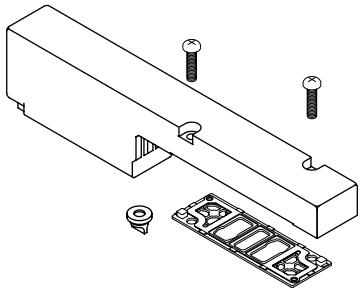
-Blanking plug



Model no.	D	L	ℓ	d
GWP4-B	4 dia.	27	11	6
GWP6-B	6 dia.	29	11.5	8
GWP8-B	8 dia.	33	14	10
GWP10-B	10 dia.	40	18.5	12

-Masking plate kit

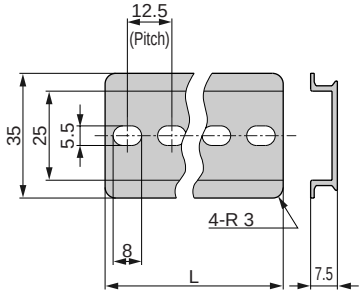
W4G2-MP



*Kit content: masking plate, gasket, PR check valve and 2 set screws

-DIN rail

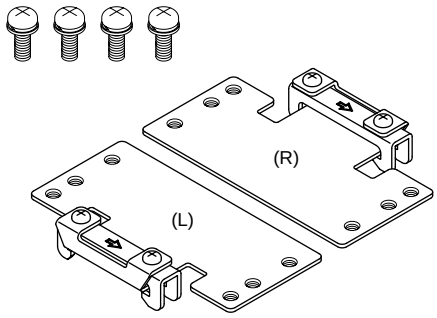
N4G-BAA (length)



*Refer to the equation (annex) on P.89 for DIN rail length.

-DIN rail bracket kit

W4G2-D

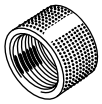


*1 set of DIN rail brackets are for 1 set of manifold.
(Kit content: 2 brackets and 4 set screws)

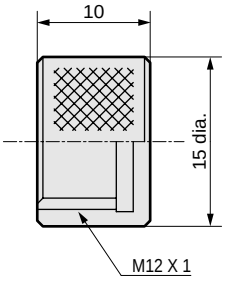
Part for I/O block

-Water proof cap

Model no.	Descriptions
W4G-XSZ-11	When power supply is common with serial transmission slave unit, this is used for jet-proof protection of power supply connector.



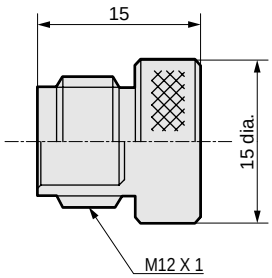
(Reference value)
Tightening torque 0.4 to 0.5 N·m



-Water proof plug

Model no.	Descriptions
W4G-XSZ-12	This is used for jet-proof protection of signal connector not used.

(Reference value)
Tightening torque 0.4 to 0.5 N·m



Block manifold: Related products

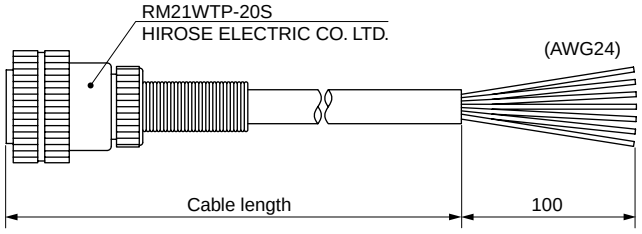
-Cable for multi connector type (wiring method T20)

[Cable with connector]

W4G -RMC- 3

Model no. Ⓐ Cable length

Ⓐ Cable length	
1	1m
3	3m
5	5m



Terminal no. and conductor

Terminal no.		1	2	3	4	5	6	7	8	9	10
Conductor I.D.	Electric wire color	White	Brown	Green	Yellow	Gray	Pink	Blue	Red	Black	Purple
	Mark tube no.	1	2	3	4	5	6	7	8	9	10
Terminal no.		11	12	13	14	15	16	17	18	19	20
Conductor I.D.	Electric wire color	Gray/pink	Red/blue	White/green	Brown/green	White/yellow	Yellow/brown	White/gray	Gray/brown	(None)	(None)
	Mark tube no.	11	12	13	14	15	16	17	18	(None)	(None)

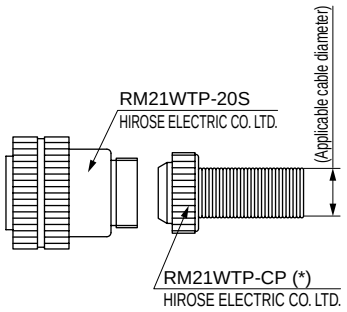
[Connector only]

W4G -RM21WTP- 10

Model no. Ⓐ Applicable cable diameter

Ⓐ Applicable cable diameter	
8	8 dia.
10	10 dia.
12	12 dia.

Note: In applicable cable diameter, clamping force and water proof may vary per type of cable, so check should be done before starting use.



*Refer to P.80 to 83 for a connector for serial transmission slave unit and input/output blocks.

-D sub-connector attached cable (wiring method T30)

N4T - Cable - D 0 0 - 1

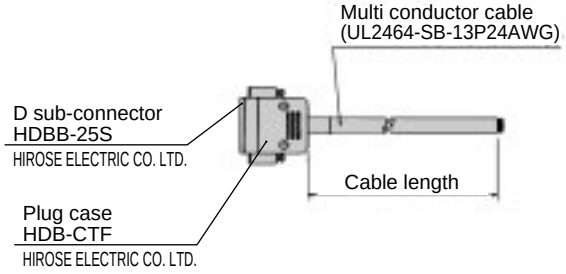
Ⓐ User interface

Ⓑ Cable length

	Symbol	Model N4T
Ⓐ	0	Cut only
	1	With round terminal of M3.5 screw
Ⓑ	1	1m
	3	3m
	5	5m

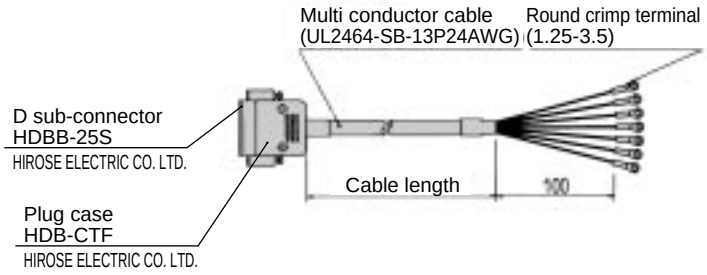
D sub-connector no. and conductor

● N4T-CABLE-D00-[B]



D sub-connector terminal no.		1	2	3	4	5	6	7	8	9	10	11	12	13
Conductor I.D.	Isolator color	Orange	Orange	Yellow	Yellow	Green	Green	Gray	Gray	White	White	Orange	Orange	Yellow
	Mark type	1 point	1 point	1 point	1 point	1 point	1 point	1 point	1 point	1 point	1 point	2 points	2 points	2 points
	Mark color	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black
D sub-connector terminal no.		14	15	16	17	18	19	20	21	22	23	24	25	
Conductor I.D.	Isolator color	Yellow	Green	Green	Gray	Gray	White	White	Orange	Orange	Yellow	Yellow	Green	
	Mark type	2 points	2 points	2 points	2 points	2 points	2 points	2 points	3 points	3 points	3 points	3 points	3 points	
	Mark color	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	

● N4T-CABLE D01-Ⓑ



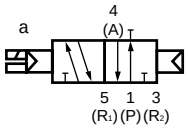
D sub-connector terminal no.		1	2	3	4	5	6	7	8	9	10	11	12	13
Conductor I.D.	Isolator color	Orange	Orange	Yellow	Yellow	Green	Green	Gray	Gray	White	White	Orange	Orange	Yellow
	Mark type	1 point	1 point	1 point	1 point	1 point	1 point	1 point	1 point	1 point	1 point	2 points	2 points	2 points
	Mark color	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black
Mark tube no.		1	2	3	4	5	6	7	8	9	10	Cut	Cut	13
D sub-connector terminal no.		14	15	16	17	18	19	20	21	22	23	24	25	
Conductor I.D.	Isolator color	Yellow	Green	Green	Gray	Gray	White	White	Orange	Orange	Yellow	Yellow	Green	
	Mark type	2 points	2 points	2 points	2 points	2 points	2 points	2 points	3 points	3 points	3 points	3 points	3 points	
	Mark color	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	
Mark tube no.		14	15	16	17	18	19	20	21	22	23	Cut	Cut	

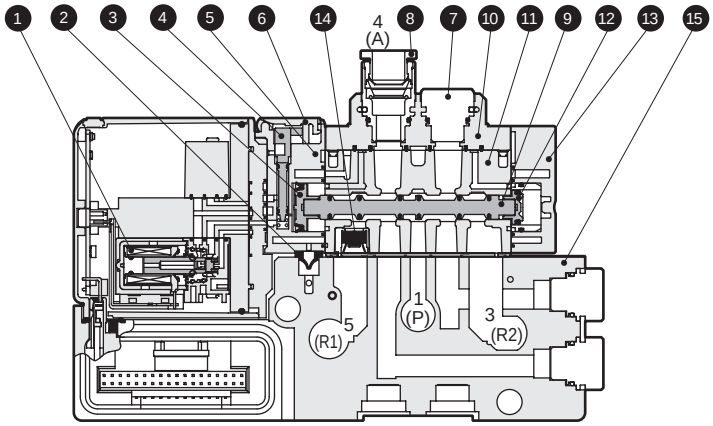
*It is a cable for 20 points. If 21 points and over are required, use the above D00-Ⓑ type.

Internal structure and parts list

NW3GA210 (body porting)

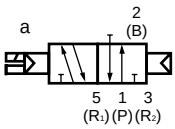
● 2 position single: Normally closed

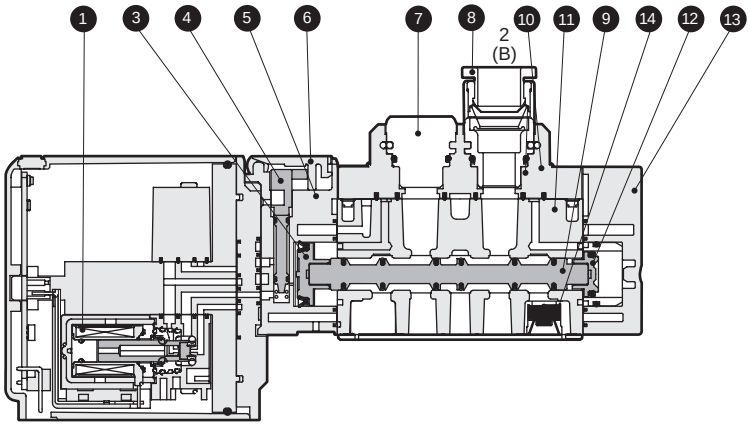




NW3GA2110

● 2 position single: normally open





Main parts list

No.	Parts name	Material
1	Coil assembly	-
2	Pilot exhaust check valve	Nitrile rubber
3	Piston D assembly	-
4	Manual override	Resin
5	Piston room	Resin
6	Protective cover of manual override	Resin
7	Plug cartridge	Aluminum
8	Cartridge type quick connector	-
9	Spool assembly	-
10	Joint adaptor	Resin
11	Body	Aluminum alloy die casting
12	Piston S assembly	-
13	Cap	Resin
14	Check valve	-
15	Valve block	Resin

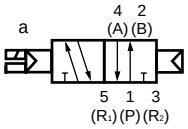
Repair parts list

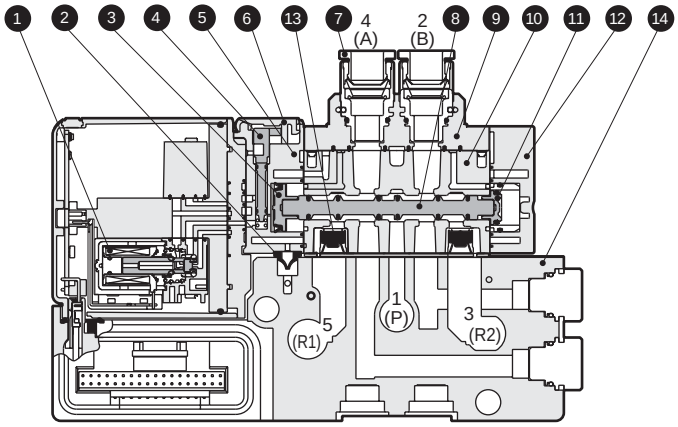
No.	Parts name		Model no.
8	Cartridge type push-in joint and related parts	4 dia. axial type	4G2-JOINT-C4
		6 dia. axial type	4G2-JOINT-C6
		8 dia. axial type	4G2-JOINT-C8
		Plug cartridge	4G2-JOINT-CPG

Internal structure and parts list

NW4GA210 (body porting)

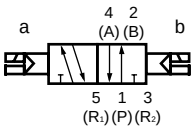
● 2 position single

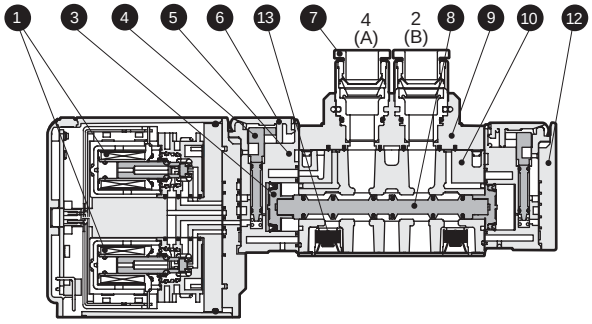




NW4GA220

● 2 position double

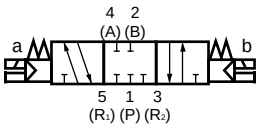




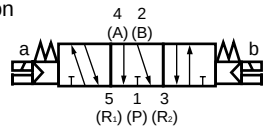
NW4GA2$^{3}_{4}_{5}$0

● 3 position

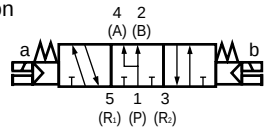
All ports closed

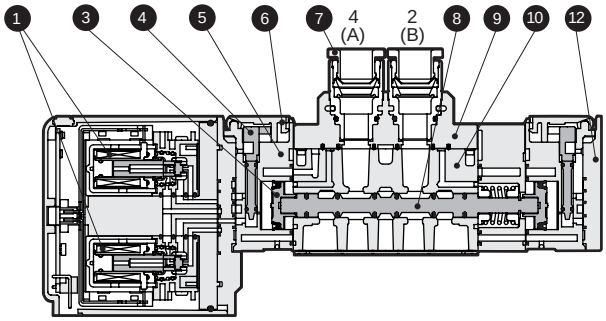


A/B/R connection



P/A/B connection





Main parts list

No.	Parts name	Material
1	Coil assembly	-
2	Pilot exhaust check valve	Nitrile rubber
3	Piston D assembly	-
4	Manual override	Resin
5	Piston room	Resin
6	Protective cover of manual override	Resin
7	Cartridge type quick connector	-
8	Spool assembly	-
9	Joint adaptor	Resin
10	Body	Aluminum alloy die casting
11	Piston S assembly	-
12	Cap	Resin
13	Check valve	-
14	Valve block	Resin

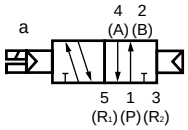
Repair parts list

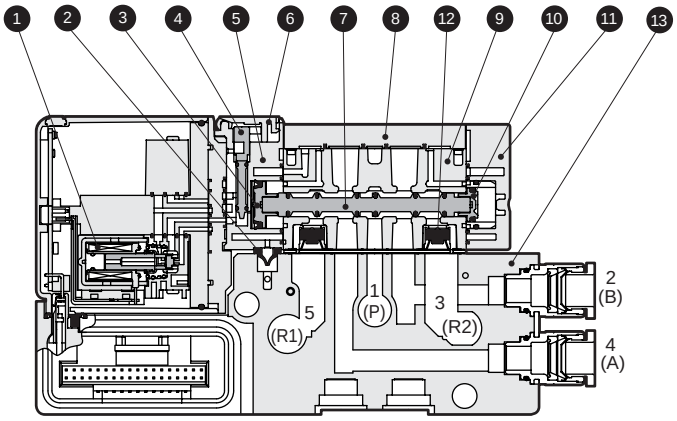
No.	Parts name		Model no.
7	Cartridge type push-in joint and related parts	4 dia. axial type	4G2-JOINT-C4
		6 dia. axial type	4G2-JOINT-C6
		8 dia. axial type	4G2-JOINT-C8
		Plug cartridge	4G2-JOINT-CPG

Internal structure and parts list

NW4GB210 (Sub-base side porting)

● 2 position single

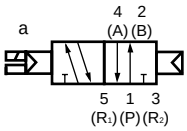


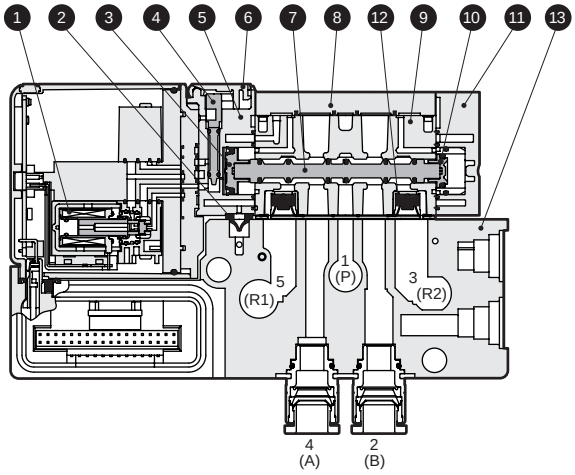


NW4GZ210 (Sub-base back porting)

*Solenoid valve is same as NW4GB210.

● 2 position single

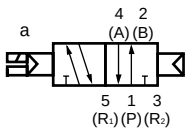


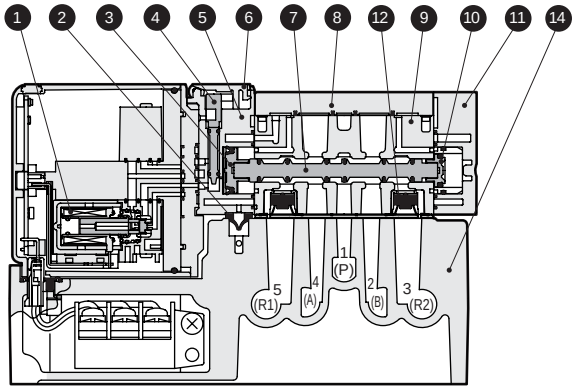


W4GB210 (discrete sub-base porting)

*Solenoid valve is same as NW4GB210.

● 2 position single





Main parts list

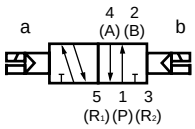
No.	Parts name	Material
1	Coil assembly	-
2	Pilot exhaust check valve	Nitrile rubber
3	Piston D assembly	-
4	Manual override	Resin
5	Piston room	Resin
6	Protective cover of manual override	Resin
7	Spool assembly	-
8	Plate	Resin
9	Body	Aluminum alloy die casting
10	Piston S assembly	-

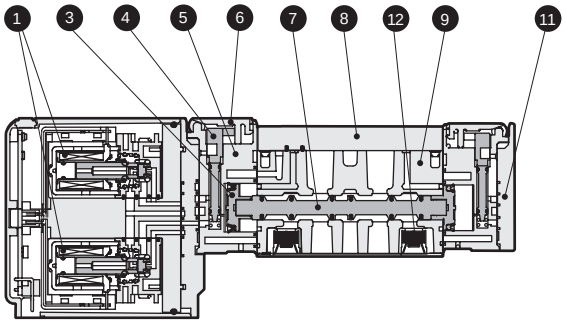
No.	Parts name	Material
11	Cap	Resin
12	Check valve	-
13	Valve block	Resin
14	Sub-plate	Aluminum alloy die casting

Internal structure and parts list

NW4G$^{B}_{Z}$220/W4GB220

● 2 position double

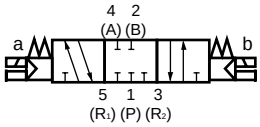




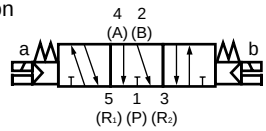
NW4G$^{B}_{Z}$2$^{3}_{5}$40/W4GB2$^{3}_{5}$40

● 3 position

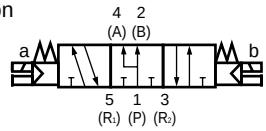
All ports closed

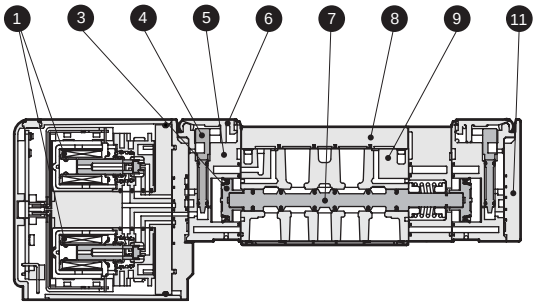


A/B/R connection



P/A/B connection





Main parts list

No.	Parts name	Material	No.	Parts name	Material
1	Coil assembly	-	11	Cap	Resin
2	Pilot exhaust check valve	Nitrile rubber	12	Check valve	-
3	Piston D assembly	-			
4	Manual override	Resin			
5	Piston room	Resin			
6	Protective cover of manual override	Resin			
7	Spool assembly	-			
8	Plate	Resin			
9	Body	Aluminum alloy die casting			
10	Piston S assembly	-			

Technical data ❶ Pneumatic system selection guide

(1) Combining 4G series and piping system, the average speed of cylinder is obtained. If a cylinder rod is installed facing the top upward, the piston speed of a cylinder is shown as stroke length is divided with the time that the piston rod starts to completes its moving. If of load factor 50%, piston speed X 0.5 of a cylinder proximately.
(2) The average speed of cylinder listed on pneumatic components selection guide is the value when a single cylinder is operated.
(3) Effective sectional area of a solenoid valve used for the calculation below is the value when 2 position.
(4) This selection guide is for reference only. Using our sizing program, check availability in accordance with actual working conditions.

Standard system table (check valve integrated)

1. Common exhaust

Valve port size	System no.	Speed controller	Cylinder pipe Pipe length 1m	Common exhaust pipe	Composite effective sectional area (mm^2)
C4	A1	SC3W-6-4	4 X 2.5 dia.	8 X 5.7 dia. X 3m	1.5
C6	B1	SC3W-6-6	6 X 4 dia.	8 X 5.7 dia. X 3m	2.8
C6	B2	SC1-6	6 X 4 dia.	8 X 5.7 dia. X 3m	4.0
C8	B3	SC1-8	8 X 5.7 dia.	8 X 5.7 dia. X 3m	5.5

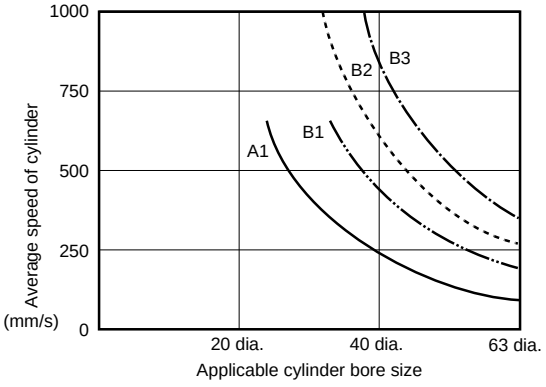
2. Atmospheric release exhaust (integrated muffler)

Valve port size	System no.	Speed controller	Cylinder pipe Pipe length 1m	Common exhaust pipe	Composite effective sectional area (mm^2)
C4	A2	SC3W-6-4	4 X 2.5 dia.	NW4G2-EX	1.6
C6	B4	SC3W-6-6	6 X 4 dia.	NW4G2-EX	3.0
C6	B5	SC1-6	6 X 4 dia.	NW4G2-EX	4.3
C8	B6	SC1-8	8 X 5.7 dia.	NW4G2-EX	6.6

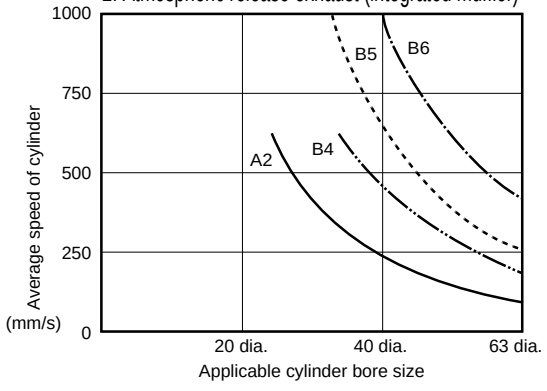
3. Silencer assembly exhaust

Valve port size	System no.	Speed controller	Cylinder pipe Pipe length 1m	Common exhaust pipe	Composite effective sectional area (mm^2)
C4	A3	SC3W-6-4	4 X 2.5 dia.	SLW-H8	1.5
C6	B7	SC3W-6-6	6 X 4 dia.	SLW-H8	2.8
C6	B8	SC1-6	6 X 4 dia.	SLW-H8	3.8
C8	B9	SC1-8	8 X 5.7 dia.	SLW-H10	6.4

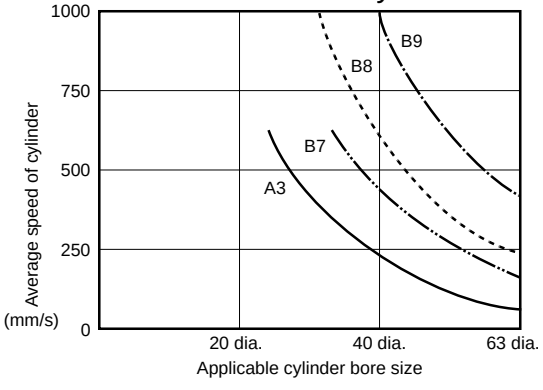
1. Common exhaust



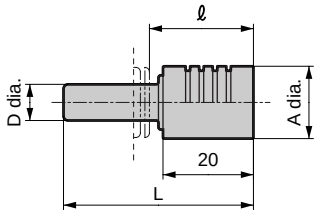
2. Atmospheric release exhaust (integrated muffler)



3. Silencer assembly exhaust



● Silencer



Model no.	D	L	ℓ	A
SLW-H8	8 dia.	42	23	16
SLW-H10	10 dia.	53	34	20

How to use the guide

Refer to the selection guide to select appropriate model.

● To select fluid control components.

As conditions, it is predetermined whether the cylinder bore size and cylinder to be used are to be operated at a relatively high speed or low speed. Refer to the table below to select the value of theoretical reference speed of cylinder.

Degree of speed of cylinder	Theoretical reference speed (mm/s)
Low speed	250
Medium speed	500
High speed	750
Ultra high speed	1,000

Refer to table (the following page) of component selection guide-1 for the appropriate cylinder bore size and proper standard system no. to theoretical reference speed.

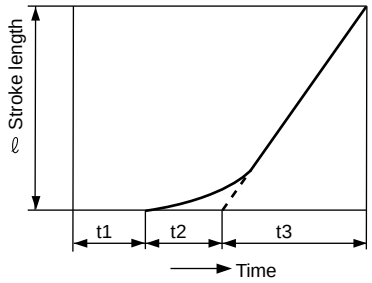
Explanation of technical terms

● Theoretical reference speed: exhibits a degree of speed of a cylinder to show with the following formula. (This value almost matches loadless speed. If load is applied, speed is remarkably decreased).

$$vo=1920 \times \frac{S}{A} 2445 \times \frac{S}{D^2} \quad \text{(1)}$$

Vo: theoretical reference speed mm/s)
A: Cylinder cross-section areas (cm^2)
S: Composite effective sectional area in circuit (exhaust side) (mm^2)
D: Cylinder bore size (cm)

As the graph showing, theoretical reference speed within range that activates in constant speed



$$vo=\frac{\ell}{t3} \text{(A/s)}$$

t1: time until movement starts
t2: time of primary delay
t3: time during constant speed operation
ℓ: Stroke length

● Note: t1 and t2 may vary per load.
If loadless, this can be neglected.

● Required flow: is instantaneous flow rate when a cylinder is operated in speed vo to be shown as the following formula. Table shows the values when P=0.5MPa. Required flow is the value required to select clean air system component.

$$Q=\frac{A\ vo\ (P+0.101) \times 60}{0.101 \times 10^4} = \left[\frac{A\ vo\ (P+1.03) \times 60}{1.03 \times 10^4}\right] \quad \text{(2)}$$

Q: required flow (RX) (ANR)
P: supply pressure (MPa)

● Required effective sectional area: is the composite effective sectional area in exhaust side circuit, required to operate a cylinder in speed of vo. (Composite effective sectional area of valve, flow control valve, silencer and pipe).

● Proper standard system: is the combination of the proper valve, flow control valve, silencer and pipe diameter. The table shows the combination when pipe length 1 m.

How to calculate flow rate

Flow rate can be obtained by the following formula.
Refer to the table of [effective sectional area] on the following page for acoustic velocity zone.

(1) $PH \leqq 1.89PL$ (subsonic zone)

$$Q=227 \times S \times \sqrt{PL \times (PH-PL)} \times \sqrt{\frac{273}{T_H}}$$

$$[Q=22.2 \times S \times \sqrt{PL \times (PH-PL)} \times \sqrt{\frac{273}{T_H}}\ ]$$

● $PH \geqq 1.89PL$ (acoustic velocity zone)

$$Q=113 \times S \times PH \times \sqrt{\frac{273}{T_H}}$$

$$[Q=11.1 \times S \times PH \times \sqrt{\frac{273}{T_H}}\ ]$$

Q: flow rate ℓ/min(ANR)
S: restricted effective sectional area mm^2
PH: pressure of upstream MPa abs
PL: pressure of downstream MPa abs
TH: absolute temperature of upstream K
Note. Absolute pressure (MPa) =working pressure+0.101 (MPa)

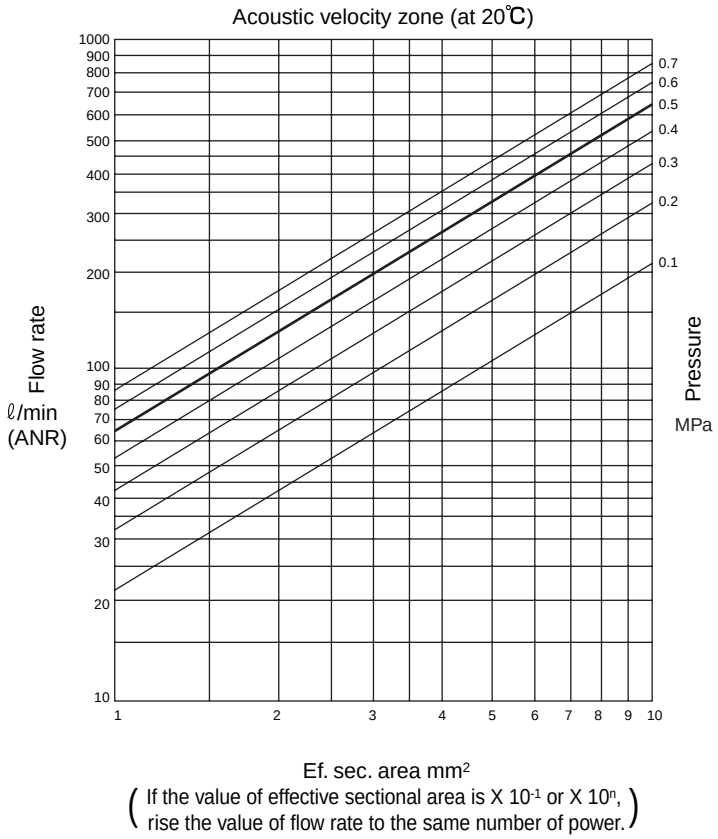
Technical data❶Pneumatic system selection guide

<Component selection guide 1 >

Cylinder Inner diameter (mm)	Theoretical criteria Speed (mm/s)	Required flow (lmin)(ANR)	Required effective sectional area (mm^2)	Proper standard system NO.		
				1. Common exhaust	2. Atmospheric release exhaust	3. Silencer assembly exhaust
6 dia.	(500)	-	(0.1)	A1	A2	A3
10 dia.	(500)	-	(0.2)	A1	A2	A3
16 dia.	(500)	-	(0.5)	A1	A2	A3
20 dia.	250	29	0.5	A1	A2	A3
	400	46	1.6	B1	A2	B7
25 dia.	250	44	0.8	A1	A2	A3
	400	70	1.9	B1	B4	B7
30 dia.	250	64	1.1	A1	A2	A3
	400	100	2.8	B2	B4	B7
32 dia.	250	73	1.3	A1	A2	A3
	400	120	3.1	B2	B5	B8
40 dia.	250	110	1.7	B1	B4	B7
	500	230	3.3	B2	B5	B8
	750	340	5.0	B3	B6	B9
	1000	450	6.6	-	B6	-
50 dia.	250	280	2.6	B1	B4	B7
	500	560	5.2	B3	B6	B9
	750	840	7.7	-	-	-
	1000	1100	10.4	-	-	-
63 dia.	250	450	4.1	B3	B5	B9
	500	910	8.2	-	-	-
	750	1400	12.3	-	-	-
	1000	1800	16.4	-	-	-

*Refer to P.65 for the system No.

<Effective sectional area >



Ef. sec. area mm^2

(If the value of effective sectional area is X 10^{-1} or X 10^{n}, rise the value of flow rate to the same number of power.)

<Clean air system component >

Clean air system component

Part name	Model no.	Port size	Max. flow rate (ℓ/min atmospheric pressure conversion)
F.R.L. kit	C1000-6	Rc1/8	450
	C1000-8	Rc1/4	630
	C3000-8	Rc1/4	1280
	C3000-10	Rc3/8	1750
	C4000-8	Rc1/4	1430
	C4000-10	Rc3/8	2400
	C4000-15	Rc1/2	3000
F.R. unit	W1000-6	Rc1/8	830
	W1000-8	Rc1/4	1150
	W3000-8	Rc1/4	2150
	W3000-10	Rc3/8	2430
	W4000-8	Rc1/4	2500
	W4000-10	Rc3/8	4350
	W4000-15	Rc1/2	4750
Air filter (F)	F1000-6	Rc1/8	460
	F1000-8	Rc1/4	610
	F3000-8	Rc1/4	1230
	F3000-10	Rc3/8	1500
	F4000-8	Rc1/4	1320
	F4000-10	Rc3/8	2140
	F4000-15	Rc1/2	3000
Regulator (R)	R1000-6	Rc1/8	770
	R1000-8	Rc1/4	1350
	R3000-8	Rc1/4	2000
	R3000-10	Rc3/8	2600
	R4000-8	Rc1/4	2500
	R4000-10	Rc3/8	4400
	R4000-15	Rc1/2	5000
Lubricator (L)	L1000-6	Rc1/8	550
	L1000-8	Rc1/4	700
	L3000-8	Rc1/4	1100
	L3000-10	Rc3/8	2250
	L4000-8	Rc1/4	1000
	L4000-10	Rc3/8	1700
	L4000-15	Rc1/2	2700

Note. Max. flow rate: For F.R.L., FR and R, the value is when primary pressure is 0.7MPa, set pressure 0.5MPa and pressure drop 0.1MPa.
For air filter, the value is when primary pressure is 0.7MPa, pressure drop 0.02MPa.
For lubricator, the value is when primary pressure is 0.5MPa and pressure 0.03MPa.

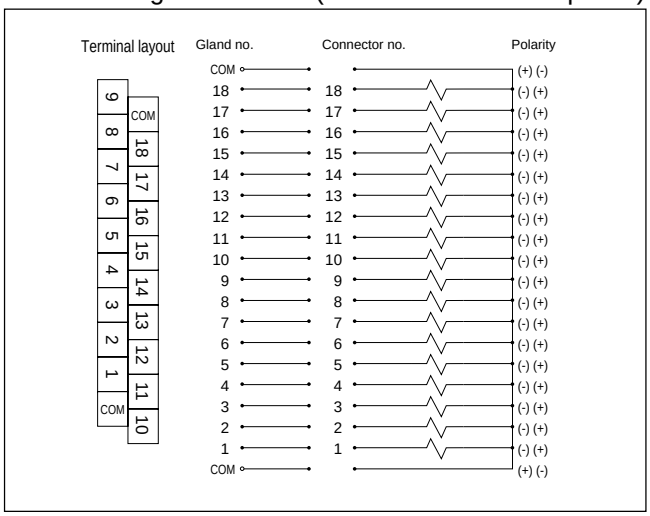
Common gland type (wiring method T10)

Notes on wiring

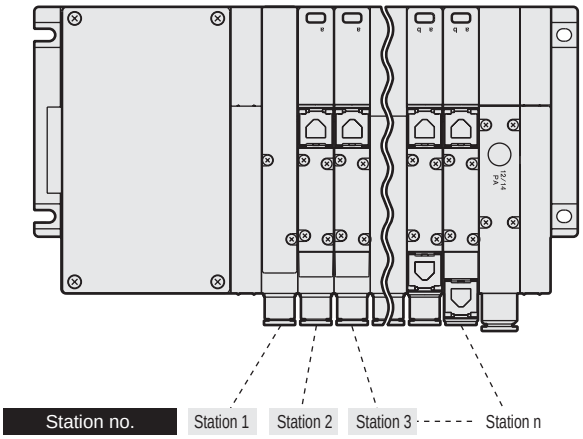
[Note on common gland type (T10)]

(1) Common wiring is internally processed for common gland type beforehand.
Wire common in contact section for individual reed type PLC output unit.
(2) Station no. and solenoids positions must be checked to prevent improper wiring.
(Refer to the table below.)
(3) When solenoid number exceeds 18 points, not available.
(4) Viewed from piping port, station no. is set from left.
(5) Voltage drop is caused by simultaneous energizing and/or cables length. Check if voltage drop to a solenoid be within 10% of rated voltage.

Internal wiring method T10 (Max. solenoid no. 18 points)



T10 (left specifications)



Terminal array of wiring method T10 (e.g.)

*: Numerals of a valve no. 1a, 1b, 2a, 2b... represent station 1 and 2, and alphabets a and b represent a and b side solenoids.
Maximum station number may vary per model.
Individual specifications must be checked.

Terminal no.

COM	18	17	16	15	14	13	12	11	10
9	8	7	6	5	4	3	2	1	COM

[Standard wiring]

● Single solenoid Valve

(Max. 18 stations)

Gland no.	COM	18	17	16	15	14	13	12	11	10
Valve no.	COM	18a	17a	16a	15a	14a	13a	12a	11a	10a
Gland no.	9	8	7	6	5	4	3	2	1	COM
Valve no.	9a	8a	7a	6a	5a	4a	3a	2a	1a	COM

● Double solenoid Valve

(Max. 9 stations)

Gland no.	COM	18	17	16	15	14	13	12	11	10
Valve no.	COM	9b	9a	8b	8a	7b	7a	6b	6a	5b
Gland no.	9	8	7	6	5	4	3	2	1	COM
Valve no.	5a	4b	4a	3b	3a	2b	2a	1b	1a	COM

● Mix (Single/double mixture)

(Max. solenoid no. 18 points)

Gland no.	COM	18	17	16	15	14	13	12	11	10
Valve no.	COM	(Void)	(Void)	(Void)	(Void)	9b	9a	8b	8a	7b
Gland no.	9	8	7	6	5	4	3	2	1	COM
Valve no.	7a	6a	5b	5a	4b	4a	3a	2a	1a	COM

[Double wiring]

(Max. 9 stations)

Gland no.	COM	18	17	16	15	14	13	12	11	10
Valve no.	COM	(Void)	9a	(Void)	8a	(Void)	7a	(Void)	6a	(Void)
Gland no.	9	8	7	6	5	4	3	2	1	COM
Valve no.	5a	(Void)	4a	(Void)	3a	(Void)	2a	(Void)	1a	COM

(Max. 9 stations)

Gland no.	COM	18	17	16	15	14	13	12	11	10
Valve no.	COM	9b	9a	8b	8a	7b	7a	6b	6a	5b
Gland no.	9	8	7	6	5	4	3	2	1	COM
Valve no.	5a	4b	4a	3b	3a	2b	2a	1b	1a	COM

(Max. solenoid no. 18 points)

Gland no.	COM	18	17	16	15	14	13	12	11	10
Valve no.	COM	9b	9a	8b	8a	7b	7a	(Void)	6a	5b
Gland no.	9	8	7	6	5	4	3	2	1	COM
Valve no.	5a	4b	4a	(Void)	3a	(Void)	2a	(Void)	1a	COM

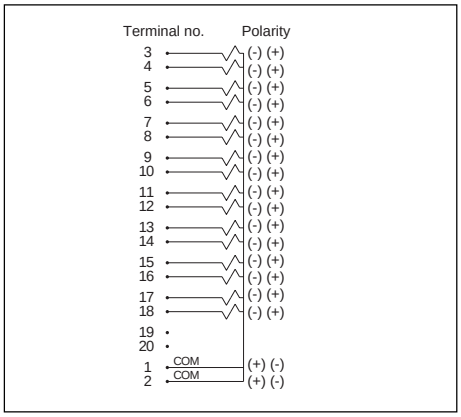
Multi-connector type (wiring method T20)

Notes on wiring

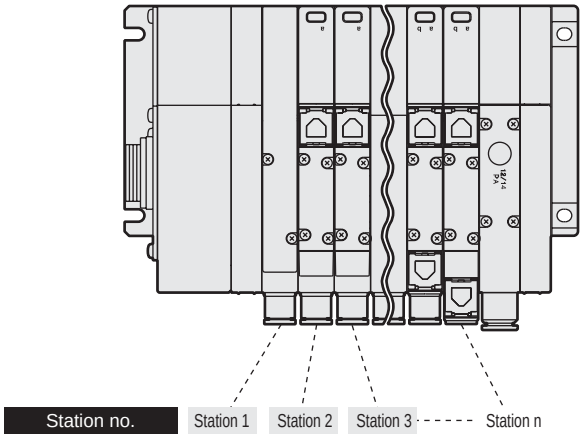
[Note on multi-connector type (T20)]

(1) Common wiring is internally processed for common gland type beforehand.
Wire common in contact section for individual reed type PLC output unit.
(2) Station no. and solenoids positions must be checked to prevent improper wiring.
(Refer to the table below.)
(3) When solenoid number exceeds 16 points, not available.
(4) Viewed from piping port, station no. is set from left.
(5) Voltage drop is caused by simultaneous energizing and/or cables length. Check if voltage drop to a solenoid be within 10% of rated voltage.

Internal wiring method T20 (Max. solenoid no. 16 points)



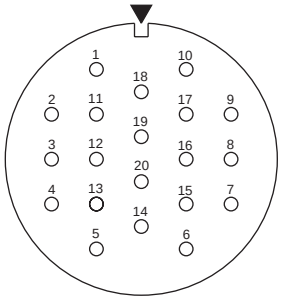
T20 (left specifications)



Terminal array of wiring method T20 (e.g.)

*: Numerals of a valve no. 1a, 1b, 2a, 2b... represent station 1 and 2, and alphabets a and b represent a and b side solenoids.
Maximum station number may vary per model.
Individual specifications must be checked.

Terminal no.



[Double wiring]

● Single solenoid Valve

(Max. 8 stations)

Terminal no.	20	19	18	17	16	15	14	13	12	11
Valve no.	(None)	(None)	(Void)	8a	(Void)	7a	(Void)	6a	(Void)	5a
Terminal no.	10	9	8	7	6	5	4	3	2	1
Valve no.	(Void)	4a	(Void)	3a	(Void)	2a	(Void)	1a	COM	COM

● Double solenoid Valve

(Max. 8 stations)

Terminal no.	20	19	18	17	16	15	14	13	12	11
Valve no.	(None)	(None)	8b	8a	7b	7a	6b	6a	5b	5a
Terminal no.	10	9	8	7	6	5	4	3	2	1
Valve no.	4b	4a	3b	3a	2b	2a	1b	1a	COM	COM

● Mix (Single/double mixture)

(Max. 8 stations)

Terminal no.	20	19	18	17	16	15	14	13	12	11
Valve no.	(None)	(None)	8b	8a	(Void)	7a	6b	6a	5b	5a
Terminal no.	10	9	8	7	6	5	4	3	2	1
Valve no.	4b	4a	(Void)	3a	2b	2a	(Void)	1a	COM	COM

D sub-connector type (wiring method T30)

Notes on wiring

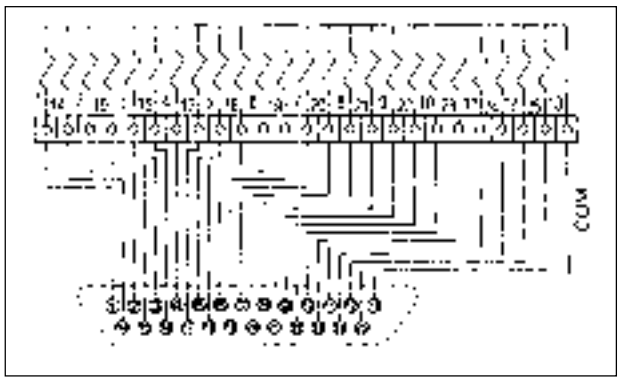
[T30 connector]

A connector for wiring method T30 is generally called as a D sub-connector, and it is widely used for FA and OA components. Especially, 25P type connector, conforming RS232C standards, is used for PC communication. Viewed from piping port, station no. is set from left.

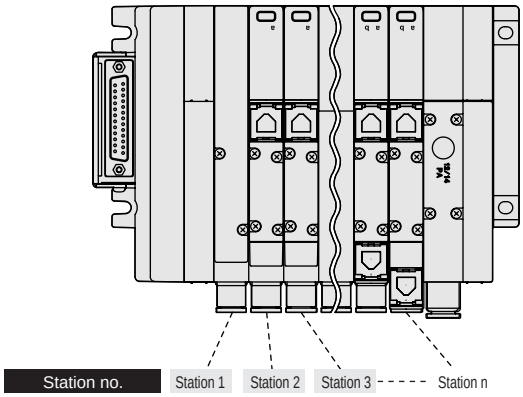
[Note on connector type T30]

(1) Signal array of PLC output unit and signal array on valve sides must be matched.
(2) Power source is DC24V and DC12V only.
(3) Voltage drop is caused by simultaneous energizing and/or cables length. Check if voltage drop to a solenoid be within 10% of rated voltage.

Internal wiring method T30 (until max. solenoid no. 24 points)



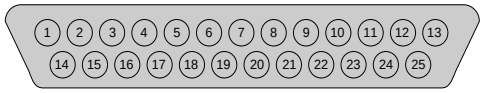
T30 (left specifications)



Connector pin array of wiring method T30 (e.g.)

*: Numerals of a valve no. 1a, 1b, 2a, 2b... represent station 1 and 2, and alphabets a and b represent a and b side solenoids.
Maximum station number may vary per model.
Individual specifications must be checked.

Connector pin no.



[Standard wiring]

● Single solenoid Valve

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

[Double wiring]

Pin no.	1	2	3	4	5	6	7	8	9	10	11	12	13
Valve no.	1a	2a	3a	4a	5a	6a	7a	8a	9a	10a	11a	12a	COM
Pin no.	14	15	16	17	18	19	20	21	22	23	24	25	
Valve no.	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	

● Double solenoid Valve

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

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

● Mix (Single/double mixture)

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

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

Flat cable connector type (wiring method T51)

Notes on wiring

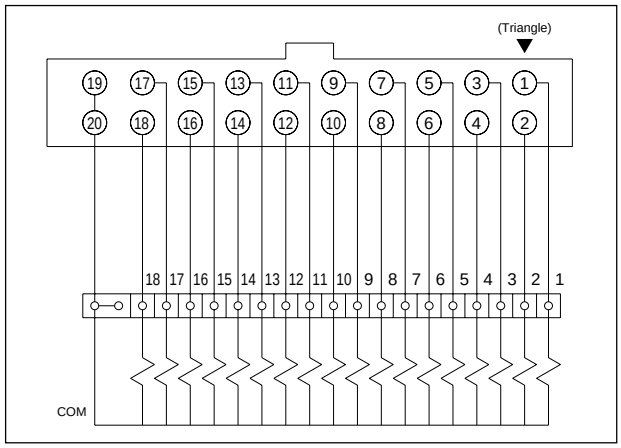
[T51 connector]

A connector for wiring method T51 conforms MIL standards (MIL-C-83503).
Wiring is simplified by flat cable pressure welding.
Pin number assignment may vary per PLC bland, however, same functions are assigned. When wiring, refer to the connector position or the triangle (▼) in the table below. Either for plug or socket, match the triangle (▼). Viewed from b side solenoid (cap side for single solenoid), station no. is set from left.

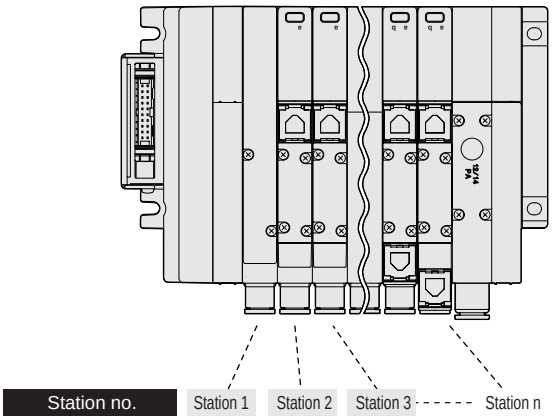
[Note on connector type (T51)]

(1) Signal array of PLC output unit and signal array on valve sides must be matched.
(2) Power source is DC24V and DC12V only.
(3) T51 type is driven by a common output unit.
(4) If this manifold is connected to an input unit, affecting to peripheral components as well as these components, so do not connect the input unit since serious failures may lead. Always connect this manifold to the output unit.
(5) Voltage drop is caused by simultaneous energizing and/or cables length. Check if voltage drop to a solenoid be within 10% of rated voltage.

Internal wiring method T51 (until max. solenoid no. 18 points)



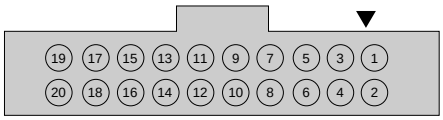
T51 (left specifications)



Connector pin array of wiring method T51 (e.g.)

*: Numerals of valve no. 1a, 1b, 2a, 2b... represent stations 1 and 2, and alphabets a and b represent a side and b side solenoids. Maximum station number may vary per model. Individual specifications must be checked.

Connector pin no.



● Single solenoid Valve only

[Standard wiring]

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

[Double wiring]

Pin no.	19	17	15	13	11	9	7	5	3	1
Valve no.	COM	9a	8a	7a	6a	5a	4a	3a	2a	1a
Pin no.	20	18	16	14	12	10	8	6	4	2
Valve no.	COM	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)

● Double solenoid Valve only

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

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

● Mix (Single/double mixture)

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

Pin no.	19	17	15	13	11	9	7	5	3	1
Valve no.	COM	9a	8a	7a	6a	5a	4a	3a	2a	1a
Pin no.	20	18	16	14	12	10	8	6	4	2
Valve no.	COM	(Void)	(Void)	7b	(Void)	(Void)	4b	3b	(Void)	(Void)

Flat cable connector type (wiring method T53)

Notes on wiring

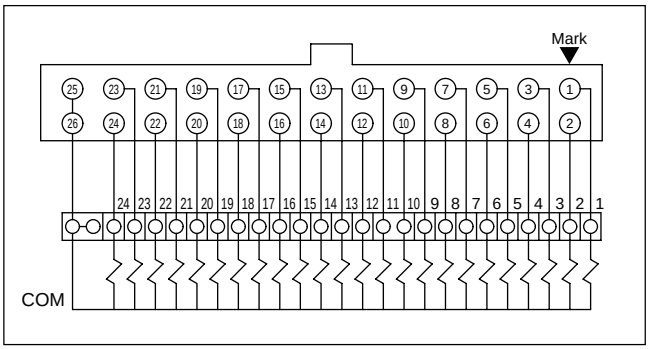
[T53 connector]

A connector for wiring method T53 conforms MIL standards (MIL-C-83503).
Wiring is simplified by flat cable pressure welding.
Pin number assignment may vary per PLC bland, however, same functions are assigned. When wiring, refer to the connector position or the triangle (▼) in the table below. Either for plug or socket, match the triangle (▼).
Viewed from b side solenoid (cap side for single solenoid), station no. is set from left.

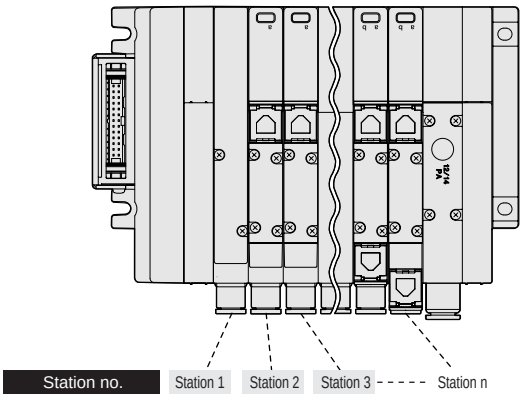
[Note on connector type (T53)]

(1) Signal array of PLC output unit and signal array on valve sides must be matched.
(2) Power source is DC24V and DC12V only.
(3) T53 type is driven by a common output unit.
(4) If this manifold is connected to an input unit, affecting to peripheral components as well as these components, do not connect to the input unit, since serious failure may lead. Always connect this manifold to an output unit.
(5) Voltage drop is caused by simultaneous energizing and/or cables length. Check if voltage drop to a solenoid be within 10% of rated voltage.

Internal wiring method T53 (until max. solenoid no. 24 points)



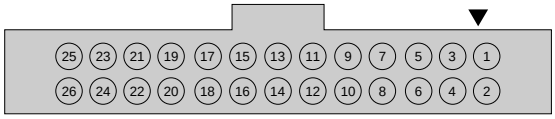
T53 (left specifications)



Connector pin array of wiring method T53 (e.g.)

*: Numerals of valve no. 1a, 1b, 2a, 2b... represent stations 1and 2..., and alphabets a and b represent a side and b side solenoids.
Maximum station number may vary per model.
Individual specifications must be checked.

Connector pin no.



[Standard wiring]

● For single solenoid valve

Pin 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
Pin 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

● For double solenoid valve

Pin 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
Pin 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

● For mix (single/double mixture)

Pin 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
Pin no.	26	24	22	20	18	16	14	12	10	8	6	4	2
Valve no.	COM	16b	15b	14b	13a	11a	9b	8b	7b	6a	5a	4a	2a

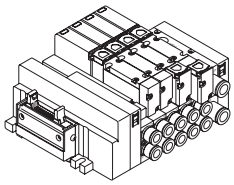
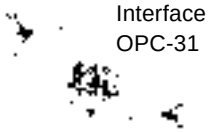
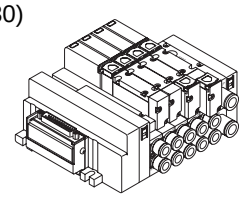
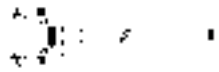
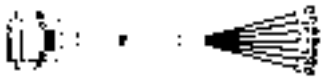
[Double wiring]

Pin 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
Pin no.	26	24	22	20	18	16	14	12	10	8	6	4	2
Valve no.	COM	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)

Pin 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
Pin 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

Pin 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
Pin no.	26	24	22	20	18	16	14	12	10	8	6	4	2
Valve no.	COM	(Void)	(Void)	(Void)	9b	8b	7b	(Void)	5b	4b	(Void)	(Void)	(Void)

Examples of wiring (recommended combination) - Use the products with following combination.

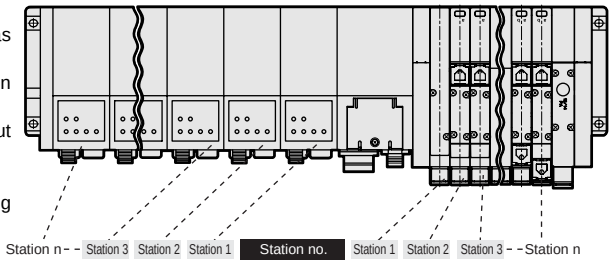
Wiring methods	Coupling cable example	PC and PC related products		
		Maker	PC	Coupling cable
Flat cable connector (T51) 		OMRON	Type C200H-OD215 Type C500-OD415CN	Type G79-*C
			Type C500-OD213	Type 79-0*DC-*
	Interface OPC-31 	MITSUBISHI	AY42 Use this product within power supply voltage 0 to+10% range.	40 P flat cable Connector and interfaces OPC-31 (CKD) and 20P flat cable Connection connector
		MATSUSHITA ELECTRIC WORKS LTD.	AFP33484	AY15133 to 7
			AFP53487	AY15223 to 7
D sub-connector (T30) 				D sub-connector attached Cable (Refer to Page P.60 for cable model no. and details.)
				

*: Considering voltage drop of PLC and flat cable, valve power supply voltage to drive must be set.

Serial transmission type: Wiring method

T8* serial transmission type

-Refer to below table since slave unit input/output number may vary per PLC maker.
-The relation between slave unit input/output number, manifold solenoid and I/O block is as the table below.
-Viewed from piping port, solenoid valve station no. is set from left regardless of the position of wiring block.
-I/O block station no. is set from serial transmission slave unit side. If input block and output block are mixed, input blocks are placed on slave unit side before output blocks.
-If there is input setting, sensors can be connected using input block.
-If solenoid number is less than output no. an external component can be connected using output block.
-Power source is DC24V only.
-Slave unit compatible with each communication system is used. Consult with CKD for available model of PLC, model no. of the host station and specifications of communication system. (Refer to P.78.)
-Each connector (power supply/communication) must be fixed tightly. Also, a switch cover is always closed after address setting, etc., then fix securely. (Recommended tightening torque 0.3N·m).



Serial transmission slave unit I/O no. compatible with PLC address no.

(1) For hexadecimal

Serial transmission slave unit I/O no.		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
CC-Link DeviceNet	Output special purpose type	Y00	Y01	Y02	Y03	Y04	Y05	Y06	Y07	Y08	Y09	Y0A	Y0B	Y0C	Y0D	Y0E	Y0F	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y1A	Y1B	Y1C	Y1D	Y1E	Y1F
	Input/output mixture type	X00	X01	X02	X03	X04	X05	X06	X07	X08	X09	X0A	X0B	X0C	X0D	X0E	X0F	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y1A	Y1B	Y1C	Y1D	Y1E	Y1F
AS-i	Input/output mixture type	ASI 1								ASI 2																							
		X00	X01	X02	X03	Y00	Y01	Y02	Y03	X00	X01	X02	X03	Y00	Y01	Y02	Y03																

(2) For decimal

Serial transmission slave unit I/O no.		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
CC-Link DeviceNet	Output special purpose type	Y0 00	Y0 01	Y0 02	Y0 03	Y0 04	Y0 05	Y0 06	Y0 07	Y0 08	Y0 09	Y0 10	Y0 11	Y0 12	Y0 13	Y0 14	Y0 15	Y1 00	Y1 01	Y1 02	Y1 03	Y1 04	Y1 05	Y1 06	Y1 07	Y1 08	Y1 09	Y1 10	Y1 11	Y1 12	Y1 13	Y1 14	Y1 15
	Input/output mixture type	X0 00	X0 01	X0 02	X0 03	X0 04	X0 05	X0 06	X0 07	X0 08	X0 09	X0 10	X0 11	X0 12	X0 13	X0 14	X0 15	Y1 00	Y1 01	Y1 02	Y1 03	Y1 04	Y1 05	Y1 06	Y1 07	Y1 08	Y1 09	Y1 10	Y1 11	Y1 12	Y1 13	Y1 14	Y1 15
AS-i	Input/output mixture type	ASI 1								ASI 2																							
		X0 00	X0 01	X0 02	X0 03	Y0 00	Y0 01	Y0 02	Y0 03	X0 00	X0 01	X0 02	X0 03	Y0 00	Y0 01	Y0 02	Y0 03																

X * * shows the input, while Y * * shows the output.

I/O point number compatible with I/O no. of wiring method T8*

Type of slave unit	Max. input no.	Max. brake power point		Serial transmission slave unit I/O no.																													
	Input block Quantity	Output block Quantity	Solenoid Point	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
* T8G1 (CC-Link) * T8D1 (DeviceNet) (0 point input/16 point output)	-	-	16 points	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16														
		1 unit (4 points)	12 points	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	1-0	1-1	1-2	1-3														
		2 units (8 points)	8 points	s1	s2	s3	s4	s5	s6	s7	s8	1-0	1-1	1-2	1-3	2-0	2-1	2-2	2-3														
* T8G2 (CC-Link) * T8D2 (DeviceNet) (0 point input/32 point output)	-	-	32 points	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	s21	s22	s23	s24	s25	s26	s27	s28	s29	s30	s31	s32
		1 unit (4 points)	28 points	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	s21	s22	s23	s24	s25	s26	s27	s28	1-0	1-1	1-2	1-3
		2 units (8 points)	24 points	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	s21	s22	s23	s24	1-0	1-1	1-2	1-3	2-0	2-1	2-2	2-3
		3 units (12 points)	20 points	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	1-0	1-1	1-2	1-3	2-0	2-1	2-2	2-3	3-0	3-1	3-2	3-3
		4 units (16 points)	16 points	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	1-0	1-1	1-2	1-3	2-0	2-1	2-2	2-3	3-0	3-1	3-2	3-3	4-0	4-1	4-2	4-3
* T8G7 (CC-Link) * T8D7 (DeviceNet) (16 points input/16 points output)	1 unit (4 points)	-	16 points	1-0	1-1	1-2	1-3													s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16
		1 unit (4 points)	12 points	1-0	1-1	1-2	1-3													s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	2-0	2-1	2-2	2-3
		2 units (8 points)	8 points	1-0	1-1	1-2	1-3													s1	s2	s3	s4	s5	s6	s7	s8	2-0	2-1	2-2	2-3	3-0	3-1	3-2	3-3
	2 units (8 points)	-	16 points	1-0	1-1	1-2	1-3	2-0	2-1	2-2	2-3									s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16
		1 unit (4 points)	12 points	1-0	1-1	1-2	1-3	2-0	2-1	2-2	2-3									s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	3-0	3-1	3-2	3-3
		2 units (8 points)	8 points	1-0	1-1	1-2	1-3	2-0	2-1	2-2	2-3									s1	s2	s3	s4	s5	s6	s7	s8	3-0	3-1	3-2	3-3	4-0	4-1	4-2	4-3
	3 units (12 points)	-	16 points	1-0	1-1	1-2	1-3	2-0	2-1	2-2	2-3	3-0	3-1	3-2	3-3					s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16
		1 unit (4 points)	12 points	1-0	1-1	1-2	1-3	2-0	2-1	2-2	2-3	3-0	3-1	3-2	3-3					s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	4-0	4-1	4-2	4-3
		2 units (8 points)	8 points	1-0	1-1	1-2	1-3	2-0	2-1	2-2	2-3	3-0	3-1	3-2	3-3					s1	s2	s3	s4	s5	s6	s7	s8	4-0	4-1	4-2	4-3	5-0	5-1	5-2	5-3
	4 units (16 points)	-	16 points	1-0	1-1	1-2	1-3	2-0	2-1	2-2	2-3	3-0	3-1	3-2	3-3	4-0	4-1	4-2	4-3	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16
		1 unit (4 points)	12 points	1-0	1-1	1-2	1-3	2-0	2-1	2-2	2-3	3-0	3-1	3-2	3-3	4-0	4-1	4-2	4-3	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	5-0	5-1	5-2	5-3
		2 units (8 points)	8 points	1-0	1-1	1-2	1-3	2-0	2-1	2-2	2-3	3-0	3-1	3-2	3-3	4-0	4-1	4-2	4-3	s1	s2	s3	s4	s5	s6	s7	s8	5-0	5-1	5-2	5-3	6-0	6-1	6-2	6-3
* T8MA (AS-i) (4 points input/4 points output)	-	-	4 points					s1	s2	s3	s4																						
	1 unit (4 points)	-	4 points	1-0	1-1	1-2	1-3	s1	s2	s3	s4																						
* T8M6 (AS-i) (8 points input/8 points output)	-	-	8 points					s1	s2	s3	s4					S5	S6	S7	S8														
		1 unit (4 points)	4 points					s1	s2	s3	s4					1-0	1-1	1-2	1-3														
	1 unit (4 points)	-	8 points	1-0	1-1	1-2	1-3	s1	s2	s3	s4					S5	S6	S7	S8														
		1 unit (4 points)	4 points	1-0	1-1	1-2	1-3	s1	s2	s3	s4					1-0	1-1	1-2	1-3														
	2 units (8 points)	-	8 points	1-0	1-1	1-2	1-3	s1	s2	s3	s4	2-0	2-1	2-2	2-3	S5	S6	S7	S8														
		1 unit (4 points)	4 points	1-0	1-1	1-2	1-3	s1	s2	s3	s4	2-0	2-1	2-2	2-3	1-0	1-1	1-2	1-3														

: Input block
: Output block
: Solenoid output

*Numerals in the I/O block section show [station no. counted from serial transmission slave unit side-connector number].

Valve no. array compatible with solenoid output no. of wiring method T8* (e.g.)

*Numerals of a valve no. 1a, 1b, 2a, 2b... represent station 1 and 2, while alphabet a and b represent a side or b side of solenoid.
Maximum station number may vary per model.
Individual specifications must be checked.

<Standard wiring > -For single solenoid valve (maximum 16 stations)

Solenoid output no.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	s21	s22	s23	s24	s25	s26	s27	s28	s29	s30	s31	s32
Valve no.	1a	2a	3a	4a	5a	6a	7a	8a	9a	10a	11a	12a	13a	14a	15a	16a																

-For double solenoid valve

Solenoid output no.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	s21	s22	s23	s24	s25	s26	s27	s28	s29	s30	s31	s32
Valve no.	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b	9a	9b	10a	10b	11a	11b	12a	12b	13a	13b	14a	14b	15a	15b	16a	16b

-For mix (single/double mixture) (max. 16 stations)

Solenoid output no.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	s21	s22	s23	s24	s25	s26	s27	s28	s29	s30	s31	s32
Valve no.	1a	2a	3a	3b	4a	4b	5a	6a	7a	7b	8a	9a	10a	10b	11a	11b	12a	13a	14a	14b	15a	15b	16a									

<Double wiring> -For single solenoid valve

Solenoid output no.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	s21	s22	s23	s24	s25	s26	s27	s28	s29	s30	s31	s32
Valve no.	1a	(Void)	2a	(Void)	3a	(Void)	4a	(Void)	5a	(Void)	6a	(Void)	7a	(Void)	8a	(Void)	9a	(Void)	10a	(Void)	11a	(Void)	12a	(Void)	13a	(Void)	14a	(Void)	15a	(Void)	16a	(Void)

-For double solenoid valve

Solenoid output no.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	s21	s22	s23	s24	s25	s26	s27	s28	s29	s30	s31	s32
Valve no.	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b	9a	9b	10a	10b	11a	11b	12a	12b	13a	13b	14a	14b	15a	15b	16a	16b

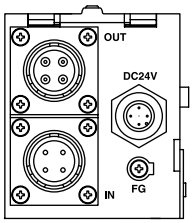
-For mix (single/double mixture)

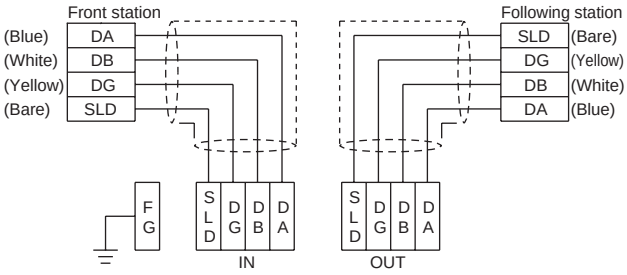
Solenoid output no.	s1	s2	s3	s4	s5	s6	s7	s8	s9	s10	s11	s12	s13	s14	s15	s16	s17	s18	s19	s20	s21	s22	s23	s24	s25	s26	s27	s28	s29	s30	s31	s32
Valve no.	1a	(Void)	2a	(Void)	3a	3b	4a	4b	5a	(Void)	6a	(Void)	7a	7b	8a	(Void)	9a	(Void)	10a	(Void)	11a	11b	12a	12b	13a	(Void)	14a	(Void)	15a	15b	16a	(Void)

Model no.	LED display	Wiring method

T8G*

LED	Display content
PW1	Lighting when unit power supply ON
PW2	Lighting when valve power supply ON
SD	Lighting when sending data
RD	Lighting when receiving data
L RUN	Lighting when normal data is received. Lighting when time over
L ERR	Lighting when transmission errors Lighting when time over Lighting when incorrect setting of station no. setting line speed Blinking when station no. setting line speed is changed during operation.

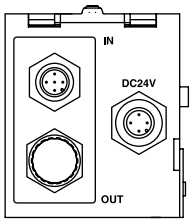


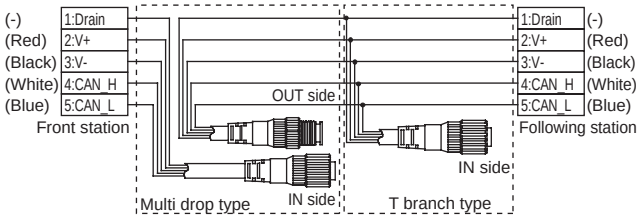


* Unit and valve power supplies are separated.
  Supply the power form a connector for power supply. (Use a M12 connector.).
* Connect a CC-Link cable to a connector for communication. (Use CC-Link special purpose water proof connector.)
* Connector wiring should be prepared by yourself.
* Refer to P.80 for pin array of a connector. Also, care must be taken since left and right sides is positioned reversely.

T8D*

LED	Display content
MS	The status of slave unit is displayed.
NS	The status of a network is displayed.
VALVE	Lighting when valve power supply ON

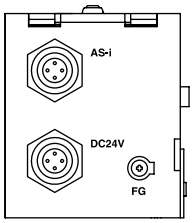


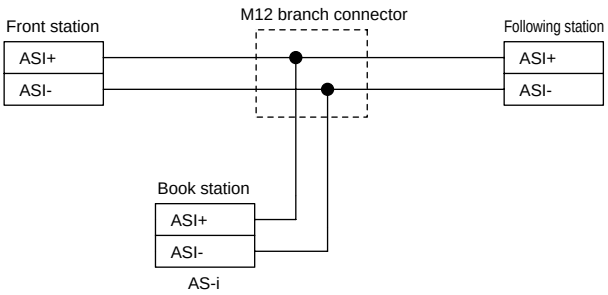


* Unit and valve power supplies are separated.
  Supply the power form a connector for power supply. (Use a M12 connector.).
* Connect a DeviceNet cable to a connector for communication. (Use DeviceNet the dedicating cable attached connector.)
* Connector wiring should be prepared by yourself.
* Refer to P.81 for pin array of a connector. Care must be taken since the left and right sides are located reversely.

T8M*

LED	Display content
AUX	Lighting when auxiliary power (valve power supply) ON
ASI1/ASI2	Lighting during normal communication Light turning off when AS-i power supply OFF Light turning off when communication stopped state Blinking when address [0]
FAULT1/FAULT2	Lighting when communication stopped state Light turning off during normal communication Blinking when sensor power supply is overload condition.



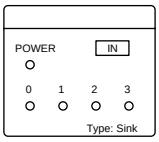
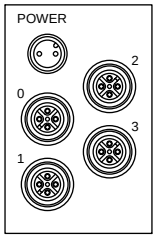
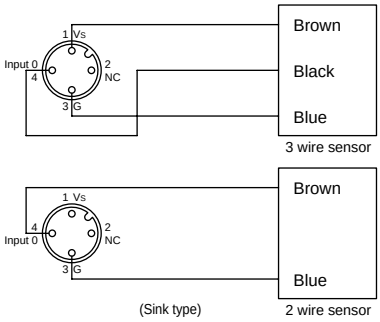
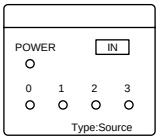
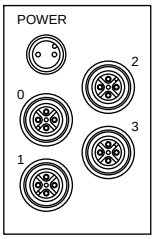
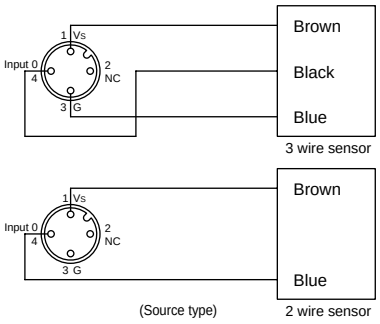
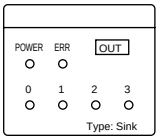
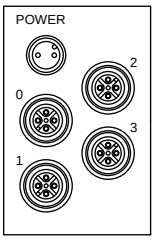
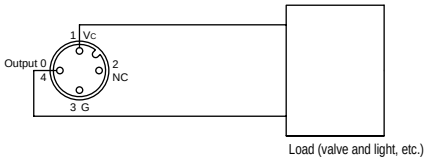
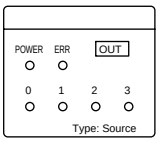
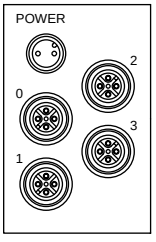
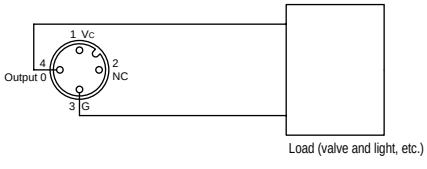


* AS-i and auxiliary power supplies (valve power supply) are required.
* Supply each power from AS-i and auxiliary power supply cables.
  Refer to P.82 for connection method using M12 branch connector.
* Refer to P.82 for pin array of a connector.

PLC table

Model no.	Maker name (recommended body)	Series	Communication system name	Host station model no.
T8G*	CC-Link institution (MITSUBISHI)	MELSEC A series MELSEC QnA series	CC-Link	AJ61BT11 AJ61QBT11 A1SJ61BT11 A1SJ61QBT11 QJ61BT11 Or Connecting to CC-link master of each bland
T8D*	OMRON	SYSMAC CS series SYSMAC CJ series SYSMAC CV series SYSMAC α series SYSMAC C200HS series Others	DeviceNet	Type CS1W-DRM21 Type CJ1W-DRM21 Type CVM1-DRM21-V1 Type C200HW-DRM21-V1 Type ITNC-EI*01-DRM (master integrated PLC) Type 3G8B3-DRM21 (VME board)
	TOYODA	PC3J/2J series PC3JD PC2F/PC2FS		THK-5398 TIC-5642 (master integrated PLC) TFU-5359
	ODVA	PLC, PC and SBC compatible with DeviceNet of each bland		Connecting to DeviceNet master of each maker
T8M*	MITSUBISHI	AnS/A2US series	AS-i	A1SJ71AS92
		Q2AS series		
	FUJI ELECTRIC CORP.	MICREX-SX series		NP1L-AS1
		FLEX-PC NJ series		NJ-ASL
		FLEX-PC NB6 series		(Including CPU unit)
	Others	Others		AS-i master unit

Technical data❷Notes on wiring

Model no. / I/O format		LED display	Wiring method
Input block NW4G*2-IN-$^{N}_{P}$-$^{K}_{B}$	Sink type		  (Sink type)
	Source type		  (Source type)
Output block NW4G*2-OUT-$^{N}_{P}$-B	Sink type		  (Sink type)
	Source type		  (Source type)

Input block NW4G*2-IN-$^{N}_{P}$-$^{K}_{B}$ — Sink type / Source type

LED	Display content
POWER	Lighting during supplying electric power to sensor
0 to 3	Lighting when each sensor output ON

* In power supply for a sensor, there are 2 types of specifications such as common with unit power supply and supplying external power from a power connector.
* In input type, there are 2 types of sink/source type.
* A connector cable should be prepared by yourself.

Output block NW4G*2-OUT-$^{N}_{P}$-B — Sink type / Source type

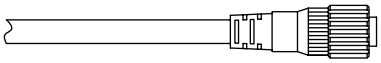
LED	Display content
POWER	Lighting during supplying power to external load
ERR	Lighting during protective circuit's activating
0 to 3	Lighting when each external load is ON.

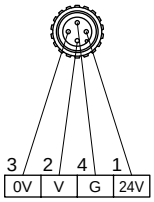
* Power supply for external load must be supplied from a POWER connector. (DC24V only).
* Care must be taken as the sum of external load current be 3A or less (1A/1 point or less).
* In output type, there are 2 types of sink/source type.
* A connector cable should be prepared by yourself.

Water proof connector

CC-Link

-Power supply connector (female pin)





Pin number	Signal	Remarks
1	24V	Unit power supply +side
2	V	Valve power supply +side
3	0V	Unit power supply -side
4	G	Valve power supply -side

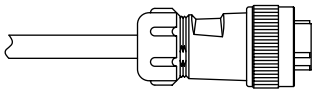
Recommended connector
Connector with cable
* Type XS2F-D421-* (single connector, socket)

Assembly type connector
* Type XS2C-D4C* (crimping type)
* Type XS2C-D42* (solder type)
* Type XS2C-D4S* (screw wiring type)

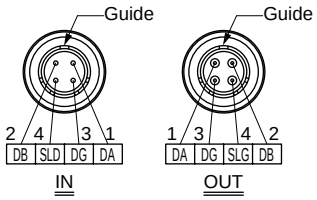
OMRON

* Do not use any radial connector.

-Communication connector



Pin number	Signal	Core color
1	DA	Blue color
2	DB	White
3	DG	Yellow
4	SLG	Shielded twist wire

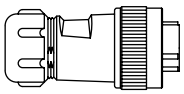


Recommended connector: FA-204-PF8 for IN
(Female pin)
FA-204-PM8 for OUT
(Male pin)

Mitsubishi Engineering
*For applicable cable outside diameter, models above are compatible with 7.0 to 8.5 dia. cable.
If cable outside diameter is dissimilated, contact Mitsubishi Engineering.
*Contact Mitsubishi Engineering about water proof connector with cable.

-Communication cable
Recommended cable (example)
Cable for CC-Link
Cable compatible with Ver1.10
KURAMO ELECTRIC CO. LTD.

FANC-SB
FANC-110SBH

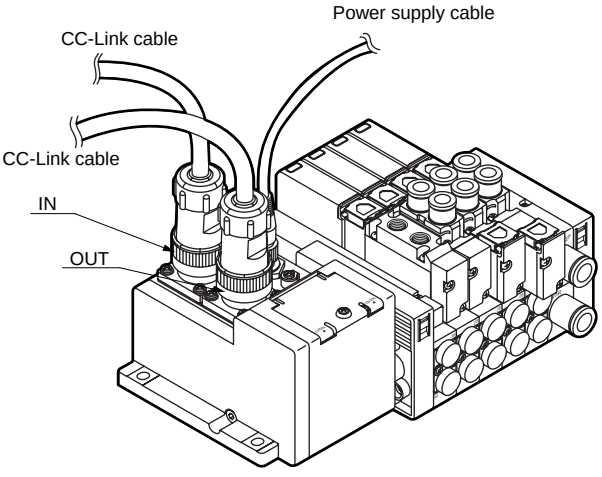


This slave unit is compatible with CC-Link Ver1.10.
Name: Terminal connector
Type name: FA-CONW4P110E
Maker: MITSUBISHI ENGINEERING
* If this slave unit is connected to the most far position from master station, the termination is required. Connect the terminal connector above to OUT side. When using the dedicating high performance cable or T branch joint, replace interior resistance of the terminal connector.

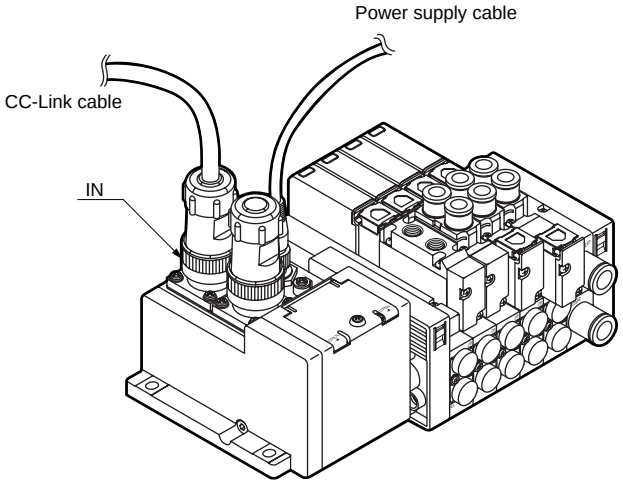
	Dedicating cable and dedicating cable compatible with ver1.10	Dedicating high performance cable	T branch joint	
			Main wiring	Branch line wiring
Terminating resistance	110 Ω(standard integrated)	130 Ω	110 Ω X 2 pieces	No terminating resistance

Connection method

-For intermediate station



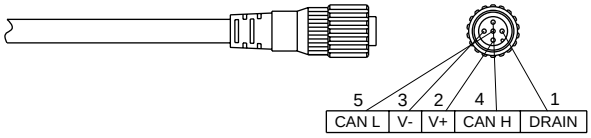
-For end station



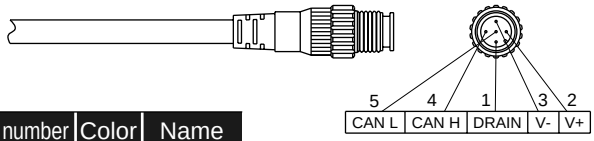
Water proof connector

DeviceNet

-Connector with cable for DeviceNet (female pin: for IN)



-Connector with cable for DeviceNet (male pin: for OUT)



Pin number	Color	Name
1	-	DRAIN
2	Red	V+
3	Black	V-
4	White	CAN H
5	Blue	CAN L

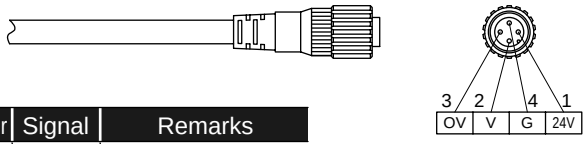
Recommended connector with cable
* Type DCA1-5CN**W1 (connector with cable both side, socket/plug)

IN
* Type DCA1-5CN**F1 (connector with cable single side, socket)

OUT
* Type DCA1-5CN**H1 (connector with cable single side, plug)

OMRON
* Do not use any radial connector.

-Connector for power supply (female pin)



Pin number	Signal	Remarks
1	24V	Unit power supply +side
2	V	Valve power supply +side
3	OV	Unit power supply -side
4	G	Valve power supply -side

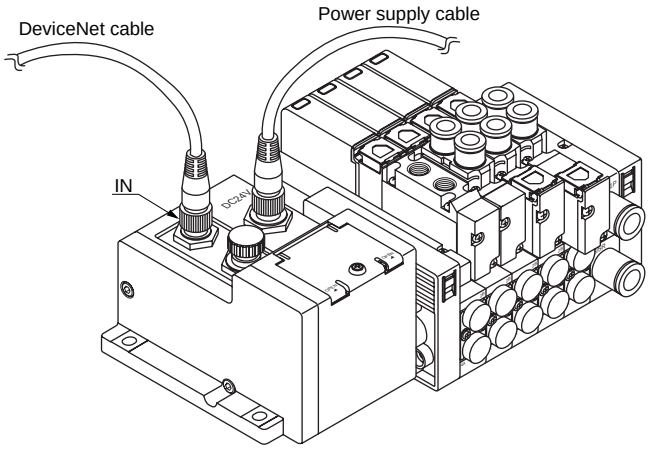
Recommended connector
Connector with cable
* Type XS2W-D421-* (both side connector, socket/plug)
* Type XS2F-D421-* (single connector, socket)

Assembly type connector
* Type XS2C-D4C* (crimping type)
* Type XS2C-D42* (solder type)
* Type XS2C-D4S* (screw wiring type)

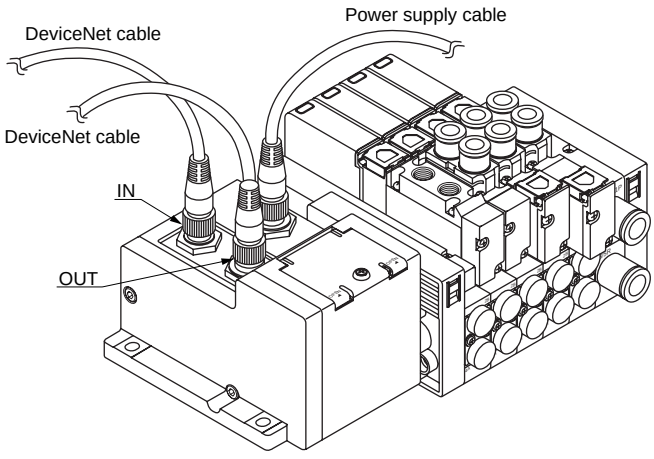
OMRON

Connection method

-When connecting T branch joint



-When connecting multi drop

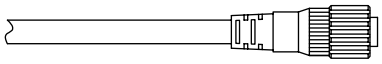


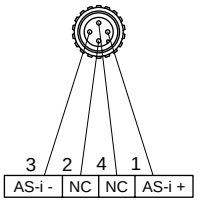
*When multi drop wiring communication cable of DeviceNet, rated communication power supply current that passes through this slave unit is to be 2A or less.

Water proof connector

AS-i

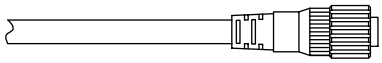
-Connector for AS-i (female pin)

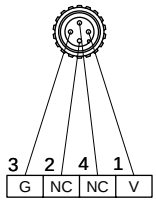




Pin number	Signal	Remarks
1	AS-i +	AS-i +side
2	NC	Not connected
3	AS-i -	AS-i -side
4	NC	Not connected

-Connector for valve (female pin)





Pin number	Signal	Remarks
1	V	Valve power supply +side
2	NC	Not connected
3	G	Valve power supply -side
4	NC	Not connected

Recommended connector
Connector with cable
* Type XS2W-D421-* (both side connector, socket/plug)
* Type XS2F-D421-* (single connector, socket)

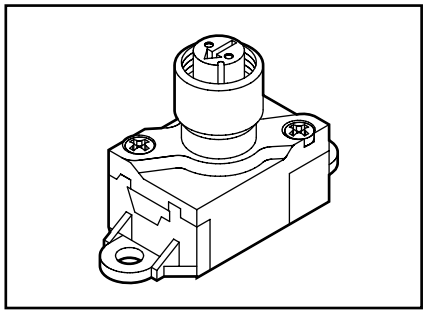
Assembly type connector
* Type XS2C-D4C* (crimping type)
* Type XS2C-D42* (solder type)
* Type XS2C-D4S* (screw wiring type)

OMRON

* Do not use any radial connector.
* Connecting an AS-i cable is enabled with the dedicating M12 branch connector. (Refer to the following for the example of connection.).
(Example: FUJI ELECTRIC CORP. 3RX9801-0AA00)

Connection method

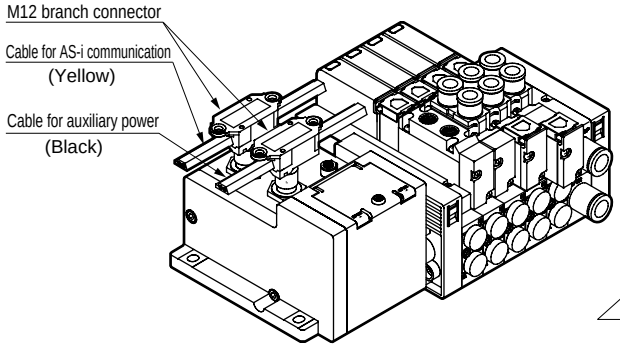
For AS-i communication cable used in AS-i system and auxiliary power supply cable, use M12 branch connector as following to connect slave units.



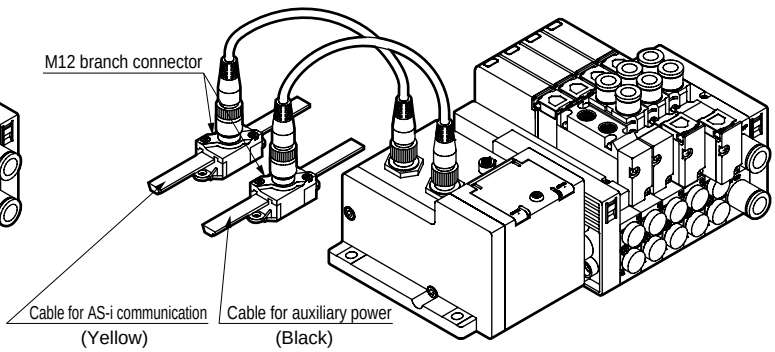
Branch connector from AS-i communication cable

M12 branch connector
(Example: FUJI ELECTRIC CORP. 3RX9801-0AA00)

*When connecting direct M12 branch connector to AS-i slave unit



*When connecting M12 branch connector to AS-i slave unit with using water proof connector

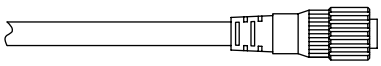


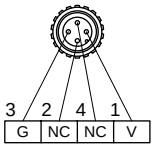
Water proof connector

Input/output

❶Input block

-External power connector (female pin)





Pin number	Signal	Remarks
1	V	External power +side
2	NC	Not connected
3	G	External power -side
4	NC	Not connected

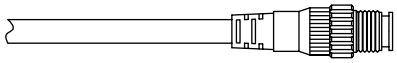
Recommended connector
Connector with cable
* Type XS2F-D421-* (single connector, socket)

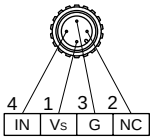
Assembly type connector
* Type XS2C-D4C* (crimping type)
* Type XS2C-D42* (solder type)
* Type XS2C-D4S* (screw wiring type)

OMRON

* Do not use any radial connector.

-Sensor side connector (male pin)





2 wire sensor

Pin number	Signal	Sink type	Source type
1	Vs	Not connected	Sensor power supply +side
2	NC	Not connected	Not connected
3	G	Sensor power supply -side	Not connected
4	IN	Input signal	Input signal

3 wire sensor

Pin number	Signal	Sink/source type
1	Vs	Sensor power supply +side
2	NC	Not connected
3	G	Sensor power supply -side
4	IN	Input signal

Recommended connector
Connector with cable
* Type XS2H-D421-* (single connector, plug)

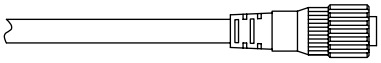
Assembly type connector
* Type XS2G-D4C* (crimping type)
* Type XS2G-D42* (solder type)
* Type XS2G-D4S* (screw wiring type)

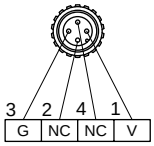
OMRON

* Do not use any radial connector.

❷Output block

-External power connector (female pin)





Pin number	Signal	Remarks
1	V	External power +side
2	NC	Not connected
3	G	External power -side
4	NC	Not connected

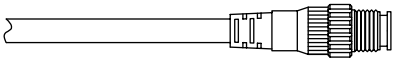
Recommended connector
Connector with cable
* Type XS2F-D421-* (single connector, socket)

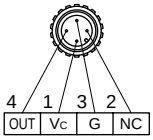
Assembly type connector
* Type XS2C-D4C* (crimping type)
* Type XS2C-D42* (solder type)
* Type XS2C-D4S* (screw wiring type)

OMRON

* Do not use any radial connector.

-External load side connector (male pin)





Pin number	Signal	Sink type	Source type
1	Vc	Power supply for load +side	Not connected
2	NC	Not connected	Not connected
3	G	Not connected	Power supply for load -side
4	OUT	Output signal	Output signal

Recommended connector
Connector with cable
* Type XS2H-D421-* (single connector, plug)

Assembly type connector
* Type XS2G-D4C* (crimping type)
* Type XS2G-D42* (solder type)
* Type XS2G-D4S* (screw wiring type)

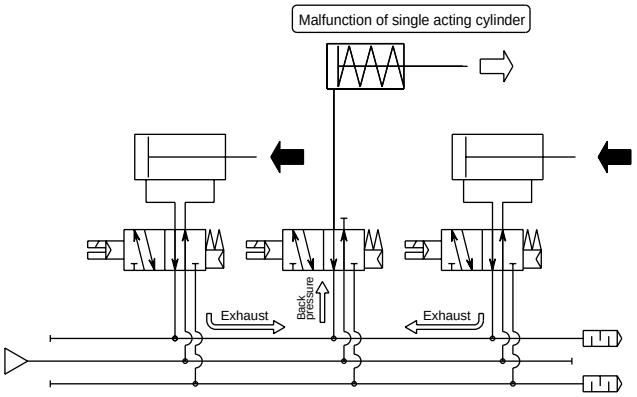
OMRON

* Do not use any radial connector.

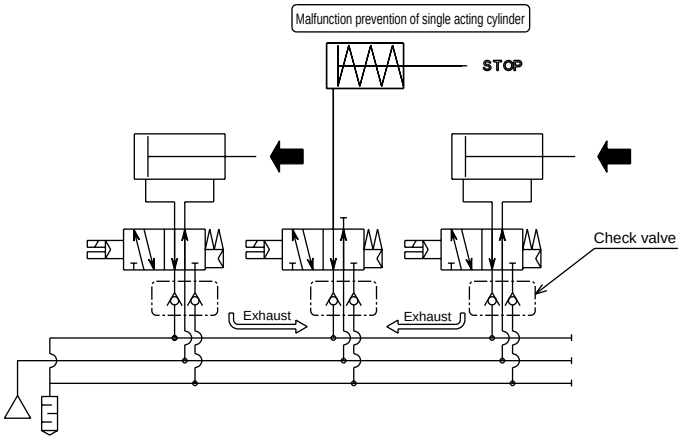
Check valve

Generally in manifold, affected by back pressure led by driving another cylinder, a single acting or a double acting cylinder connected to ABR connection valve may malfunction. A [check valve] is equipped as standard to prevent this malfunction. However, in all ports closed valve and PAB connection valves without back pressure, the check valve is not equipped.

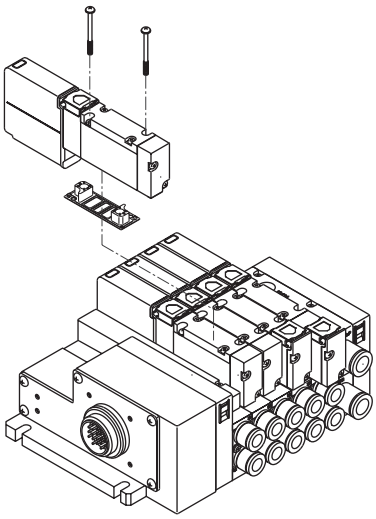
Example when pneumatic system may malfunction



Pneumatic system containing 4G series

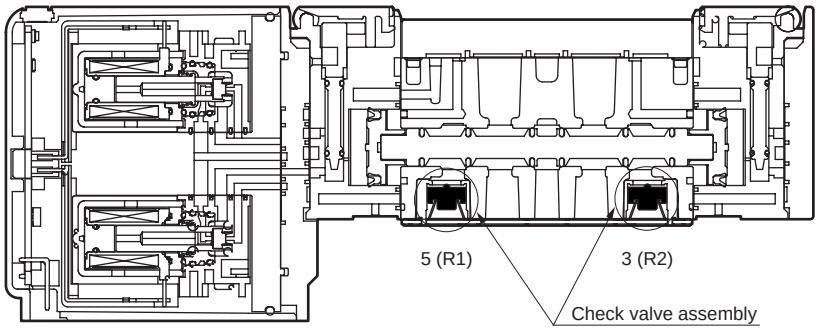


Internal structure drawing



Check valve equipped standard specifications

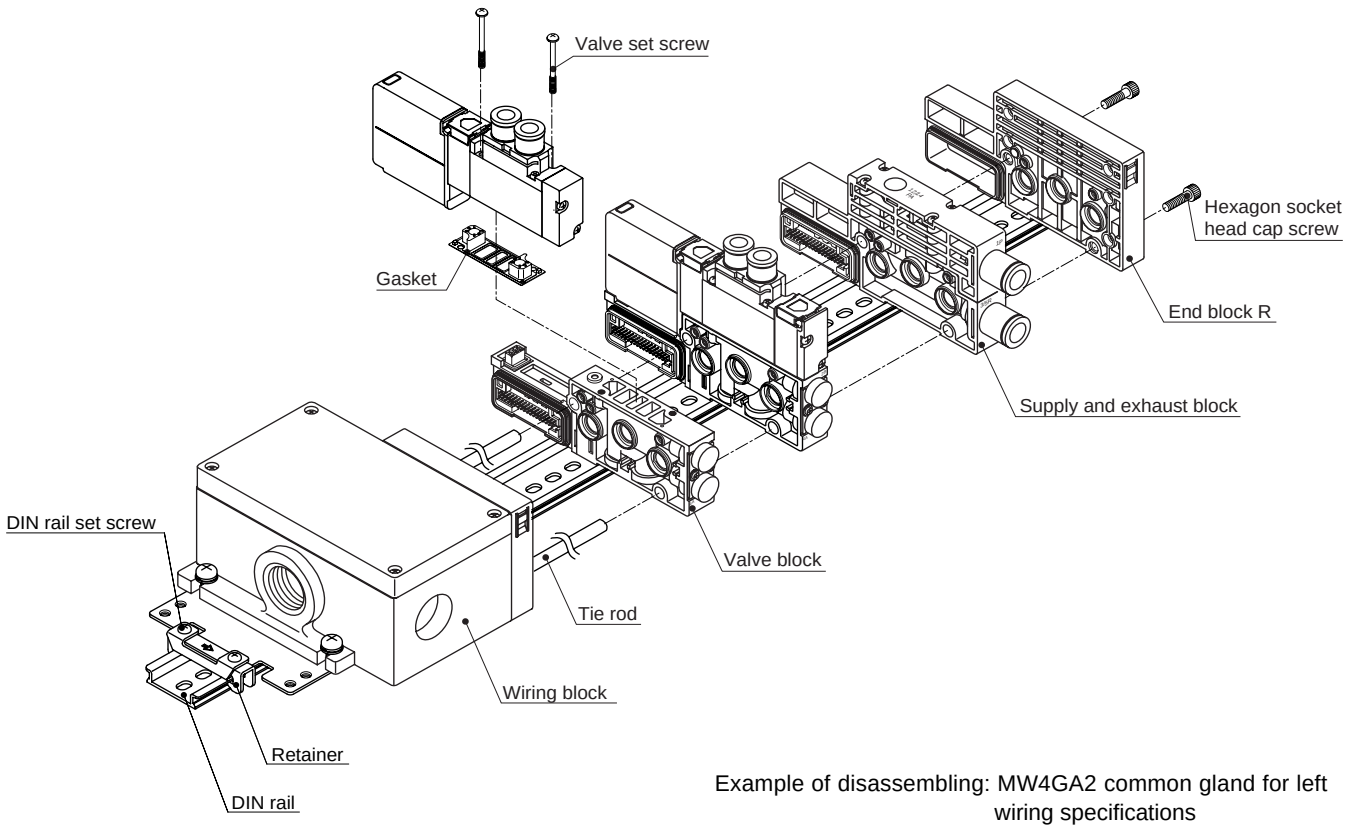
Model no.	Flow path switchover	5(R1)	3(R2)
NW3GA210	NC	Selected	-
NW3GA2110	NO	-	Selected
NW4G⇕210	2 position single	Selected	Selected
NW4G⇕220	2 position double	Selected	Selected
NW4G⇕230	All ports closed	None	None
NW4G⇕240	ABR connection	Selected	Selected
NW4G⇕250	PAB connection	None	None



Technical data❹How to expand reduced wiring manifold

Deal drawing of block manifold

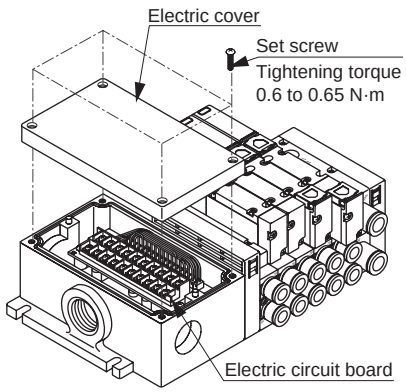
*Refer to the following page for the deal drawing of serial transmission slave unit + I/O block.



Example of disassembling: MW4GA2 common gland for left wiring specifications

Removing electric cover

T10



Expanding manifold of valve lock

(● for DIN rail mount)

❶ Loosen DIN rail set screws of retainer.

(2) Remove hexagon socket head cap screws.

(3) Remove blocks located until the position to be expanded.

(4) Install tie rods as required to be expanded.

(5) Install a valve block to be added.

(6) Holding down without gaps between blocks, joint with hexagon socket head cap screws. (Tightening torque: 1.4 to 1.6N·m).

❼ -A. Catch the jaw of retainer on DIN rail certainly.
-B. Holding down retainer to the arrow direction,
-C. Fix DIN rail with set screw.
(Tightening torque: 1.2 to 1.6 N·m)

Valve replacement

Removing method

(1) Loosen set screws (2 points).

(2) Remove a valve from a valve block.

Installation method

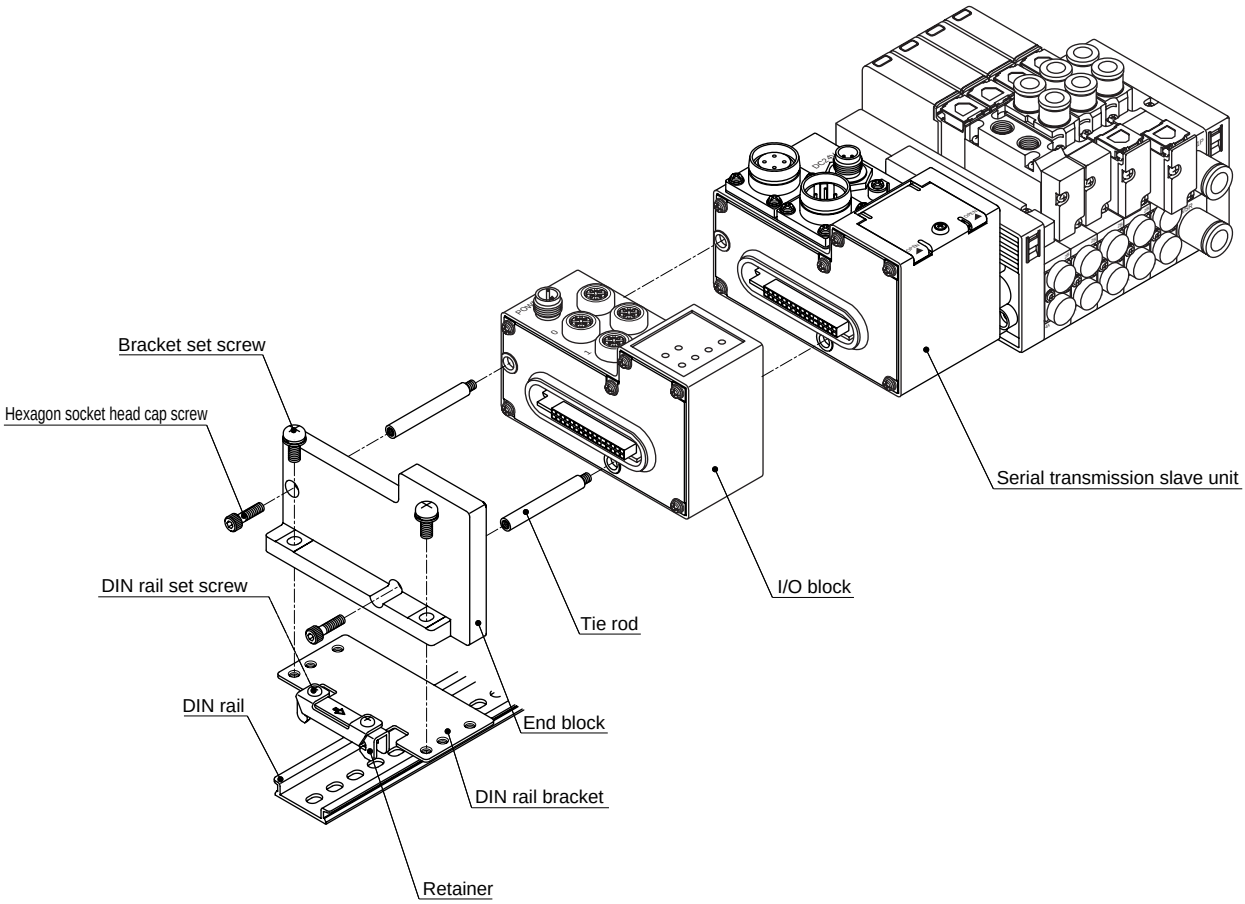
Follow the steps as reverse as removing.

Also, refer to the following for recommended tightening torque of set screw.

Recommended tightening torque of valve set screw

	Size	Recommended tightening torque (N·m)
4G2	M2.5	0.25 to 0.30

Deal drawing of serial transmission slave unit + I/O block



Expanding manifold of I/O block

(● for DIN rail mount)

❶ Loosen DIN rail set screws of retainer.

❷ Remove bracket set screws, then DIN rail bracket.

(3) Remove hexagon socket head cap screws.

(4) Remove I/O blocks located until the position to be expanded.

(5) Install tie rods as required to be expanded.

(6) Install I/O blocks to be added.

(Output block needs setting of rotary switch.
Refer to the handling precaution attached on the product for details.)

(7) Holding down without gaps between blocks, joint with hexagon socket head cap screw. (Tightening torque: 1.4 to 1.6N/m).

❽ Fix DIN rail bracket with bracket set screw.
(Tightening torque: 1.8 to 2.3 N·Em)

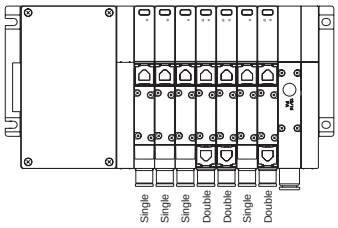
❾ - A. Catch the jaw of retainer on DIN rail certainly,
- B. Holding down retainer to the arrow direction,
- C. Tighten DIN rail set screw.
(Tightening torque: 1.2 to 1.6 N·m)

Technical data❹How to expand reduced wiring manifold

How to connect T10 electric circuit board (standard wiring)

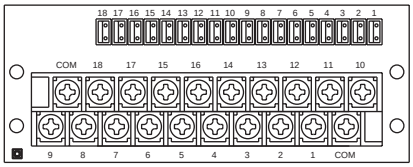
Compatibility between a connector and valve on the electric circuit board may vary per reduced wiring specifications (T10). When connector wiring, a connector no. printed on circuit board must be checked.

Refer to an example of the following manifold structure for wiring of mix manifold.

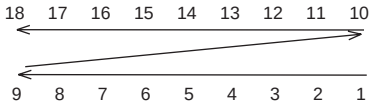


T10

Electric circuit board assembly



Wire in order of arrow.



With valve

1) For single SOL
(Max. 18 stations)

Connector no.	COM	18	17	16	15	14	13	12	11	10
Valve no.	COM	18a	17a	16a	15a	14a	13a	12a	11a	10a
Connector no.	9	8	7	6	5	4	3	2	1	COM
Valve no.	9a	8a	7a	6a	5a	4a	3a	2a	1a	COM

2) For double SOL
(Max. 9 stations)

Connector no.	COM	18	17	16	15	14	13	12	11	10
Valve no.	COM	9b	9a	8b	8a	7b	7a	6b	6a	5b
Connector no.	9	8	7	6	5	4	3	2	1	COM
Valve no.	5a	4b	4a	3b	3a	2b	2a	1b	1a	COM

3) For mix manifold
(Max. solenoid no. 18 points)

Connector no.	COM	18	17	16	15	14	13	12	11	10
Valve no.	COM	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	7b
Connector no.	9	8	7	6	5	4	3	2	1	COM
Valve no.	7a	6a	5b	5a	4b	4a	3a	2a	1a	COM

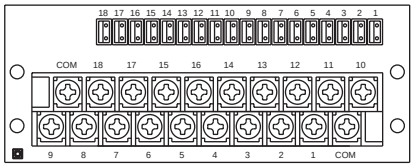
*1 Only when AC specifications, expansion wiring is required.
*2 If change of AC specifications will be implemented, use a valve block with masking plate as a reserved block.

How to connect T10 electric circuit board (double wiring)

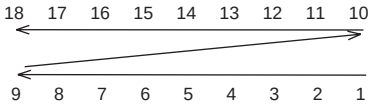
In double wiring specifications, the wiring is compatible with wiring of double solenoid regardless of solenoid position of solenoid valve to be installed. If of standard and double wirings for double solenoid only, the same wiring applies.

T10

Electric circuit board assembly



Wire in order of arrow.



With valve

1) For single SOL
(Max. 9 stations)

Connector no.	COM	18	17	16	15	14	13	12	11	10
Valve no.	COM	(Void)	9a	(Void)	8a	(Void)	7a	(Void)	6a	(Void)
Connector no.	9	8	7	6	5	4	3	2	1	COM
Valve no.	5a	(Void)	4a	(Void)	3a	(Void)	2a	(Void)	1a	COM

2) For double SOL
(Max. 9 stations)

Connector no.	COM	18	17	16	15	14	13	12	11	10
Valve no.	COM	9b	9a	8b	8a	7b	7a	6b	6a	5b
Connector no.	9	8	7	6	5	4	3	2	1	COM
Valve no.	5a	4b	4a	3b	3a	2b	2a	1b	1a	COM

3) For mix manifold
(Max. solenoid no. 18 points)

Connector no.	COM	18	17	16	15	14	13	12	11	10
Valve no.	COM	(Void)	(Void)	(Void)	(Void)	7b	7a	(Void)	6a	5b
Connector no.	9	8	7	6	5	4	3	2	1	COM
Valve no.	5a	4b	4a	(Void)	3a	(Void)	2a	(Void)	1a	COM

How to fill out manifold specification sheet

-Manifold model no. (e.g.)

Solenoid position 2 types and over | Port size 2 types and over | Serial transmission (CC-Link) (16 points input/16 points output)

MW 4 GA2 8 0 - CX - T8G7 W HY11 D - 6 - 3

Model no. ⒶSolenoid position ⒷPort size ⒹReduced wiring ⒺTerminal/connector pin Array ⒻOption ⒼMount type ⒽStation no. ⒾVoltage

Different from station no.

Part name	Model no.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
I/O block	NW4GA2-IN-[N]-[K]		○																													1
	NW4GA2-OUT-[N]-B	○																														1
Wiring block	NW4GA2-T [8G7]			○																												1
With solenoid valve Valve block	NW4GA2 [1]0-[C4]				○																											1
	NW4GA2 [2]0-[C6]						○																									1
	NW4GA2 [3]0-[C4]					○																										1
	NW4GA2 [ ]0-[ ]																															
	NW4GA2 [ ]0-[ ]																															
	NW4GA2 [ ]0-[ ]																															
	NW3GA2 [1]0-[C4]										○																					1
	NW3GA2 [11]0-[C4]											○																				1
With masking plate Valve block	NW4G2-MPS																															
	NW4G2-MPD												○																			1
Supply and exhaust block	NW4G2-Q [ ]-[8L]-[ ]							○		○																						2
	NW4G2-Q [ ]-[ ]-[ ]																															
	NW4G2-Q [ ]-[ ]-[ ]																															
	NW4G2-Q [ ]-[ ]-[ ]																															
Partition block	NW4G2-[SA]								○																							1
	NW4G2-[ ]																															
	NW4G2-[ ]																															
End block R	NW4G2-[E]R													○																		1

Always indicate on the right end.

If reduced wiring is T10, if required, indicate a circle. (Selection per applicable cable outside diameter)

DIN rail	L_7=[ ]	Blanking plug			Silencer	Tag plate		Cable clamp W4G-SCL-18A	Cable clamp W4G-SCL-18B	Water proof plug	Accessories
		GWP4-B	GWP6-B		SLW-H8	A	○	Applicable cable outside diameter 14.5 to 16.5 dia.	Applicable cable outside diameter 16.5 to 18.5 dia.	W4G-XSZ-12	
		GWP8-B	GWP10-B		SLW-H10						

When both of input/output blocks are installed, the output block is to be left. (Viewed from the joint)

Station no. : Station 1

Station no. : Station 6

If blanking plug and silencers are required, a quantity is indicated in the size section.

If required, indicate a circle.

I/O block If required, indicate a quantity.

*DIN rail length (L_7)

(1) Refer to the following calculation method for rail length.
The found length is the standard length.
(2) If of standard length, length (L_7) is not required in the specification.
If length other than standard is required, fill out the form.

-How to calculate DIN rail length

Valve block / Supply and exhaust block / Partition block / Wiring block / I/O block

Manifold length (L_6) =(A X n)+(B X m)+(C X l)+ D +(E X k)

DIN rail length (L_7) =L_7' X 12.5

L_7': $\frac{L_6+40}{12.5}$ ->round up at the decimal point

Rail mount pitch (L_8) =L_7-12.5

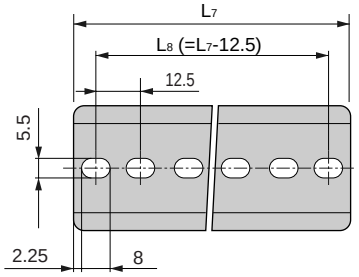
			MW4GA/B2
A	Valve block		16
B	Supply and exhaust block		18
C	Partition block		13.5
D	Wiring block for reduced wiring	T10	175.5
		T20	110
		T30/5*	106
		T8*	148.5
E	I/O block		45

* Wring block contains end block.

-DIN rail length quick reference

L_6 .. Manifold length	135 or less	135 to 147.5 or less	147.5 to 160	160 to 172.5	172.5 to 185	185 to 197.5	197.5 to 210	210 to 222.5	222.5 to 235	235 to 247.5	247.5 to 260	260 to 272.5	272.5 to 285	285 to 297.5	297.5 to 310	310 to 322.5	322.5 to 335	335 to 347.5	347.5 to 360	360 to 372.5	372.5 to 385	385 to 397.5	397.5 to 410	410 to 422.5	422.5 to 435	435 to 447.5	447.5 to 460	460 to 472.5	472.5 to 485
L_7 .. Rail length	175	187.5	200	212.5	225	237.5	250	262.5	275	287.5	300	312.5	325	337.5	350	362.5	375	387.5	400	412.5	425	437.5	450	462.5	475	487.5	500	512.5	525
Pitch L_8	162.5	175	187.5	200	212.5	225	237.5	250	262.5	275	287.5	300	312.5	325	337.5	350	362.5	375	387.5	400	412.5	425	437.5	450	462.5	475	487.5	500	512.5

Note 1: If L6 exceeds this table, refer to " how to calculate DIN rail length ".



How to fill out wiring specifications

● Wiring specifications (e.g.)

* The following example is filled out according to the manifold specification sheet on P.89.

Connector pin no.	Valve no.																							
TIO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	a																							
2																								
3			a																					
4			b																					
5		a																						
6		b																						
7				a																				
8																								
9					a																			
10																								
11						a																		
12						b																		
13																								
14																								
15																								
16																								
17																								
18																								
COM																								
COM																								

● Notes of wiring specifications

(1) If other than standard wiring/double wiring, fill out the form, then attach it to the manifold specification sheet.
In this case, the product is custom order, so please consult with CKD.

(2) If of standard wiring/double wiring, the form is not required.

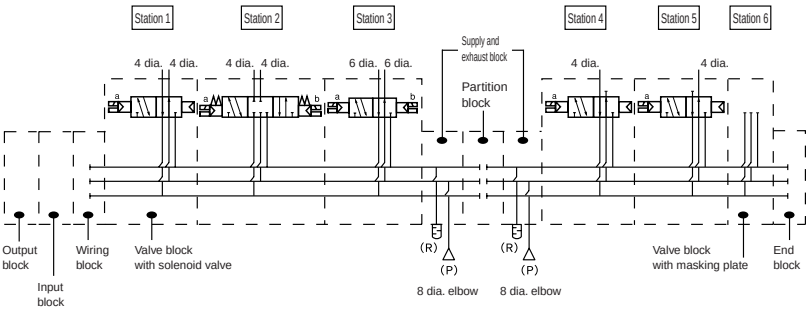
(3) Viewed from the port, valve numbers are numerals counted valve block only from the left.
Care must be taken since the number is different from the number of installation location.

(4) A valve block with masking plate is wired beforehand.
"-MPS" is wired only a side, while "-MPD" is a/b side.

(5) Any solenoid valve of double solenoid or 3 position can not be assembled to "-MPS".
Purchase valve blocks with solenoid valve, and expand the manifold.
Refer to P.85 for expanding manifold procedures.

(6) Any reserved wire for expanding manifold can not be installed alone beforehand. Install valve blocks with masking plate.

References circuit diagram This is references circuit diagram of the manifold model no. on the previous page (e.g.)



* ⬚ box shows each block configurations.
* Viewed from piping port, station no. is set from left. (* Station no. does not contain I/O block, wiring block, supply, exhaust, partition block and end block.)
* Select model no. according to block configurations (P.47 to 60) and reduced wiring manifold (P.7 to 8 and 23 to 24).
* Viewed from piping port, layout position is set from left.
* If both of input block/output block is installed, viewed from piping port, the output block is to be left.

MW4G2 Series

Manifold specification sheet

W4GA2 block manifold specifications

-Contact -Quantity set -Delivery / /

Issue date / / /

Slip no.	CKD order no.

Your company name

Name contact

Customer order no.

-Manifold model no.

MW ☐ GA2 ☐ 0 - ☐ - ☐ ☐ ☐ ☐ - ☐ - ☐

Model no. ❹Solenoid position ❺Port size ❻Reduced wiring ❼Terminal/connector Pin array ❽Option ❾Mount type ❿Station no. ⓫Voltage

When writing the format, refer to block configurations (P.47 to 60) and P.7 to 8 to select model no.

Part name (Page)	Model no.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
I/O block (P.55)	NW4GA2-IN-☐-☐																															
	NW4GA2-OUT-☐-B																															
Wiring block (P.54)	NW4G☐2-T☐ (Note 1)																															
With solenoid valve Valve block (P.7 to 8)	NW4GA2☐0-☐																															
	NW4GA2☐0-☐																															
	NW4GA2☐0-☐																															
	NW4GA2☐0-☐																															
	NW4GA2☐0-☐																															
	NW4GA2☐0-☐																															
	NW3GA2☐0-☐																															
	NW3GA2☐0-☐																															
With masking plate Valve block (P.49)	NW4GA2-MPS																															
	NW4GA2-MPD																															
Supply and exhaust block (P.51)	NW4G2-Q☐-☐-☐																															
	NW4G2-Q☐-☐-☐																															
	NW4G2-Q☐-☐-☐																															
	NW4G2-Q☐-☐-☐																															
Partition block (P.51)	NW4G2-☐																															
	NW4G2-☐																															
	NW4G2-☐																															
End block (P.51)	NW4G2-☐R																															

DIN rail	L_7 = ☐ (How to calculate length P.89)	Blanking plug			Silencer	Tag plate	Cable clamp W4G-SCL-18A	Cable clamp W4G-SCL-18B	Water proof plug	Accessories
		GWP4-B	GWP6-B	SLW-H8	A	Applicable cable outside diameter 14.5 to 16.5 dia.	Applicable cable outside diameter 16.5 to 18.5 dia.	W4G-XSZ-12	
		GWP8-B	GWP10-B	SLW-H10					

Note 1: Model no. of a wiring block must be specified as followings.

NW4G☐2-T☐

Type of wiring block (Refer to P.54.)

Blank: T10/T20/T30/T5*

A : T8*

W4GB2 block manifold specifications

-Contact -Quantity set -Delivery / /

Slip no.	Order no.

Issue date / /

Your company name

Name contact

Order no.

-Manifold model no.

MW4GB2 ☐ 0 - ☐ - ☐ ☐ ☐ ☐ - ☐ - ☐

Model no. ❹Solenoid position ❺Port size ❻Reduced wiring ❼Terminal/connector Pin array ❽Option ❾Mount type ❿Station no. ⓫Voltage

When writing the format, refer to block configurations (P.47 to 60) and P.23 to 24 to select model no.

Part name (Page)	Model no.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
I/O block (P.55)	NW4GB2-IN-☐-☐																															
	NW4GB2-OUT-☐-B																															
Wiring block (P.54)	NW4G☐2-T☐ (Note 1)																															
With solenoid valve Valve block (P.23 to 24)	NW4GB2☐0-☐																															
	NW4GB2☐0-☐																															
	NW4GB2☐0-☐																															
	NW4GB2☐0-☐																															
	NW4GB2☐0-☐																															
	NW4GB2☐0-☐																															
	NW4GB2☐0-☐																															
	NW4GB2☐0-☐																															
With masking plate Valve block (P.49)	NW4GB2-MPS-☐																															
	NW4GB2-MPD-☐																															
Supply and exhaust block (P.51)	NW4G2-Q☐-☐-☐																															
	NW4G2-Q☐-☐-☐																															
	NW4G2-Q☐-☐-☐																															
	NW4G2-Q☐-☐-☐																															
Partition block (P.51)	NW4G2-☐																															
	NW4G2-☐																															
	NW4G2-☐																															
End block (P.51)	NW4G2-☐R																															

DIN rail	L_7 = ☐ (How to calculate length P.89)	Blanking plug				Silencer		Tag plate		Cable clamp W4G-SCL-18A		Cable clamp W4G-SCL-18B		Water proof plug		Accessories
		GWP4-B	GWP6-B	GWP8-B	GWP10-B	SLW-H8	SLW-H10	B		Applicable cable outside diameter 14.5 to 16.5 dia.		Applicable cable outside diameter 16.5 to 18.5 dia.		W4G-XSZ-12		

Note 1: Model no. of a wiring block must be specified as followings.

NW4G☐2-T☐

- ☐: Blank: T10/T20/T30/T5*, B: T8*
- Type of wiring block (Refer to P.54.)

Manifold specification sheet

W4GZ2 block manifold specifications

-Contact -Quantity set -Delivery / /

Issue date / / /

Slip no.	Order no.

Your company name

Name contact

Order no.

-Manifold model no.

MW4GZ2 [ ] 0 - [ ] - [ ] [ ] [ ] - [ ] - [ ]

Model no. ⒶSolenoid position ⒷPort size ⒹReduced wiring ⒺTerminal/connector pin Array ⒻOption ⒽStation no. ⒾVoltage

When writing the format, refer to block configurations (P.47 to 60) and P.23 to 24 to select model no.

Part name (Page)	Model no.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
I/O block (P.55)	NW4GB2-IN-[ ]-[ ]																														
	NW4GB2-OUT-[ ]-B																														
Wiring block (P.54)	NW4G[ ]2-T[ ] (Note 1)																														
With solenoid valve Valve block (P.23 to 24)	NW4GZ2[ ]0-[ ]																														
	NW4GZ2[ ]0-[ ]																														
	NW4GZ2[ ]0-[ ]																														
	NW4GZ2[ ]0-[ ]																														
	NW4GZ2[ ]0-[ ]																														
	NW4GZ2[ ]0-[ ]																														
	NW4GZ2[ ]0-[ ]																														
	NW4GZ2[ ]0-[ ]																														
With masking plate Valve block (P.49)	NW4GZ2-MPS-[ ]																														
	NW4GZ2-MPD-[ ]																														
Supply and exhaust block (P.51)	NW4G2-Q[ ]-[ ]-[ ]																														
	NW4G2-Q[ ]-[ ]-[ ]																														
	NW4G2-Q[ ]-[ ]-[ ]																														
	NW4G2-Q[ ]-[ ]-[ ]																														
Partition block (P.51)	NW4G2-[ ]																														
	NW4G2-[ ]																														
	NW4G2-[ ]																														
End block (P.51)	NW4G2-[ ]R																														

Accessories	Blanking plug				Silencer		Tag plate		Cable clamp W4G-SCL-18A		Cable clamp W4G-SCL-18B		Water proof plug		Accessories
	GWP4-B		GWP6-B		SLW-H8		B		Applicable cable outside diameter 14.5 to 16.5 dia.		Applicable cable outside diameter 16.5 to 18.5 dia.		W4G-XSZ-12		
	GWP8-B		GWP10-B		SLW-H10										

Note 1: Model no. of a wiring block must be specified as followings.

NW4G[ ]2-T[ ]

Type of wiring block (Refer to P.54.)

Blank: T10/T20/T30/T5*
B : T8*

Common gland type (T10) wiring specifications

* When other than standard wiring/double wiring, fill out the form, and attach it to the manifold specification sheet.
* If of standard wiring/double wiring, it is not necessary to specify.

Connector pin No.	Valve no.																							
T10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2																								
3																								
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15																								
16																								
17																								
18																								
COM																								
COM																								

D sub-connector type (T30) wiring specifications

* When other than standard wiring/double wiring, fill out the form, and attach it to the manifold specification sheet.
* If of standard wiring/double wiring, it is not necessary to specify.

Connector pin No.	Valve no.																							
T30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
14																								
2																								
15																								
3																								
16																								
4																								
17																								
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10																								
23																								
11																								
24																								
12																								
25																								
13(COM)																								

Flat cable connector type (T51/T53) wiring specifications

* When other than standard wiring/double wiring, fill out the form, and attach it to the manifold specification sheet.
* If of standard wiring/double wiring, it is not necessary to specify.

Connector pin no.		Valve no.																							
T51	T53	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1																								
2	2																								
3	3																								
4	4																								
5	5																								
6	6																								
7	7																								
8	8																								
9	9																								
10	10																								
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12	12																								
13	13																								
14	14																								
15	15																								
16	16																								
17	17																								
18	18																								
19 COM	19																								
20 COM	20																								
	21																								
	22																								
	23																								
	24																								
	25 COM																								
	26 COM																								

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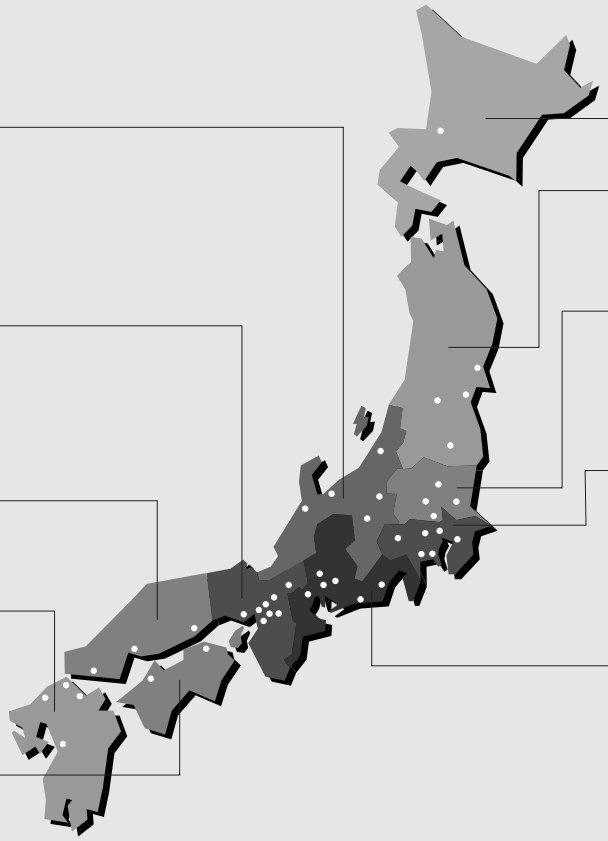

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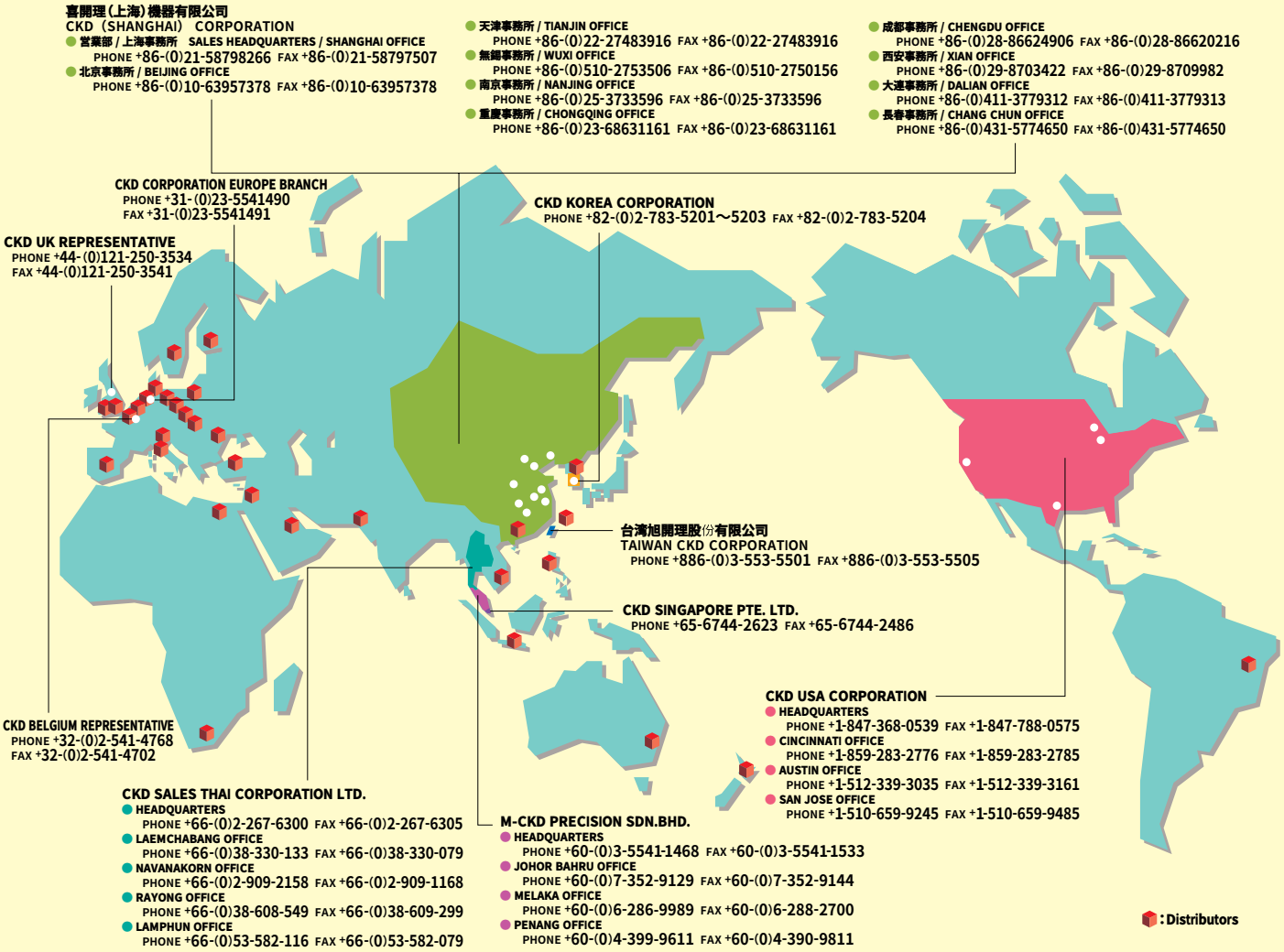

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