Discontinue

CKD

SM－303049-A

INSTRUCTION MANUAL

BLOCK MANIFOLD

W4G2-SERIES

SERIAL TRANSMISSION TYPE

MW4G※2－T8M※
(APPLICABLE TO AS-Interface)

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

4th Edition

CKD Corporation

Discontinue

For Safety Use

To use this product safety, basic knowledge of pneumatic equipment, including materials, piping, electrical system and mechanism is required (to the level pursuant to JIS B 8370 Pneumatic System Rules).

We do not bear any responsibility for accidents caused by any person without such knowledge or arising from improper operation.

Our customers use this product for a very wide range of applications, and we cannot keep track of all of them. Depending on operating conditions, the product may fail to operate to maximum performance, or cause an accident. Thus, before placing an order, examine whether the product meets your application, requirements, and how to use it.

This product incorporates many functions and mechanisms to ensure safety. However, improper operation could result in an accident. To prevent such accidents, read this operation manual carefully for proper operation.

Observe the cautions on handling described in this manual, as well as the following instructions:

⚠ PRECAUTIONS

- Incorrect address settings of serial transmission slave stations could cause the solenoid valve and the cylinder to malfunction.
- For operation if serial transmission slave stations, read the communication system operation manual carefully.
- Do not touch electric-wiring connections (exposed live parts): this will cause an electric shock. During wiring, keep the power off. Also, do not touch these live parts with wet hands.
- This product does not meet the surge immunity requirements specified in EN61000-4-5 for CE marking. Please provide appropriate protective measures against lightning surges on the device side.
- When the valve power is turned on (i.e., at power-up), the valve lamp may light up momentarily. However, the valve itself is not turned on or off as a result of this.

Discontinue

INDEX

MW4G※2-T8M※
Serial Transmission Type
Manual No. SM-303049-A

Dec.20.2002
Revision:Jun.22.2012

Discontinue

1. PRODUCT

1. 1 General outline of the system

1) MW4G※2-T8M※

This solenoid valve system is equipped with a slave unit (NW4G※2-T8M※), connected to AS-Interface(Actuator Sensor Interface).
The following features are provided.

(1) This unit can be connected to the PLC using one AS-i communication cable. This greatly reduces the wiring work steps.
(2) This slave station is an environment-proof slave station applicable to the protection structure IP65 (dust-proof and jet-proof type).
(3) Upper and side wiring directions are provided, ensuring reduction of the installation space.
(4) The communication conforms to the communication specifications Ver. 2.0.

2) AS-Interface

A 2-wire serial transmission system that is capable of simultaneous transmission of the power and communication data to the slave unit is used to construct an open network located in the bottom layer of the FA network system.
AS-Interface system has following features:

(1) The degree of the freedom about wiring becomes high. Various systems, such as tree connection, star connection, and bus connection can be constructed.
(2) The maximum transmission distance of the AS-i communication cable is 100 m. (This maximum transmission distance can be extended to 300 m when using the repeater.)
(3) Up to 248 points (input 124 points/output 124 points) of sensors and/or actuators can be connected. The maximum cycle time is 5 msec., ensuring high-speed processing.

Note: This document mainly describes MW4G※2-T8M※ and slave station(NW4G※2-T8M※). For details about other units to be connected to the AS-Interface, read User's Manual of master unit. Before operating this manifold solenoid valve, thoroughly read both this document and above manual to fully understand its functionality and performance.
If the customer has any question about the AS-Interface, contact the following home page.

Discontinue

AS-International (Germany)

Home page address: **http://www.as-interface.net**

Japan As-i Association

Secretariat: Yasukawa Siemens Automation Drive, Co., Ltd.

e-mail : ysad_cd@ysad.co.jp

Telephone : 03-3570-3025

F A X : 03-3570-3062

Discontinue

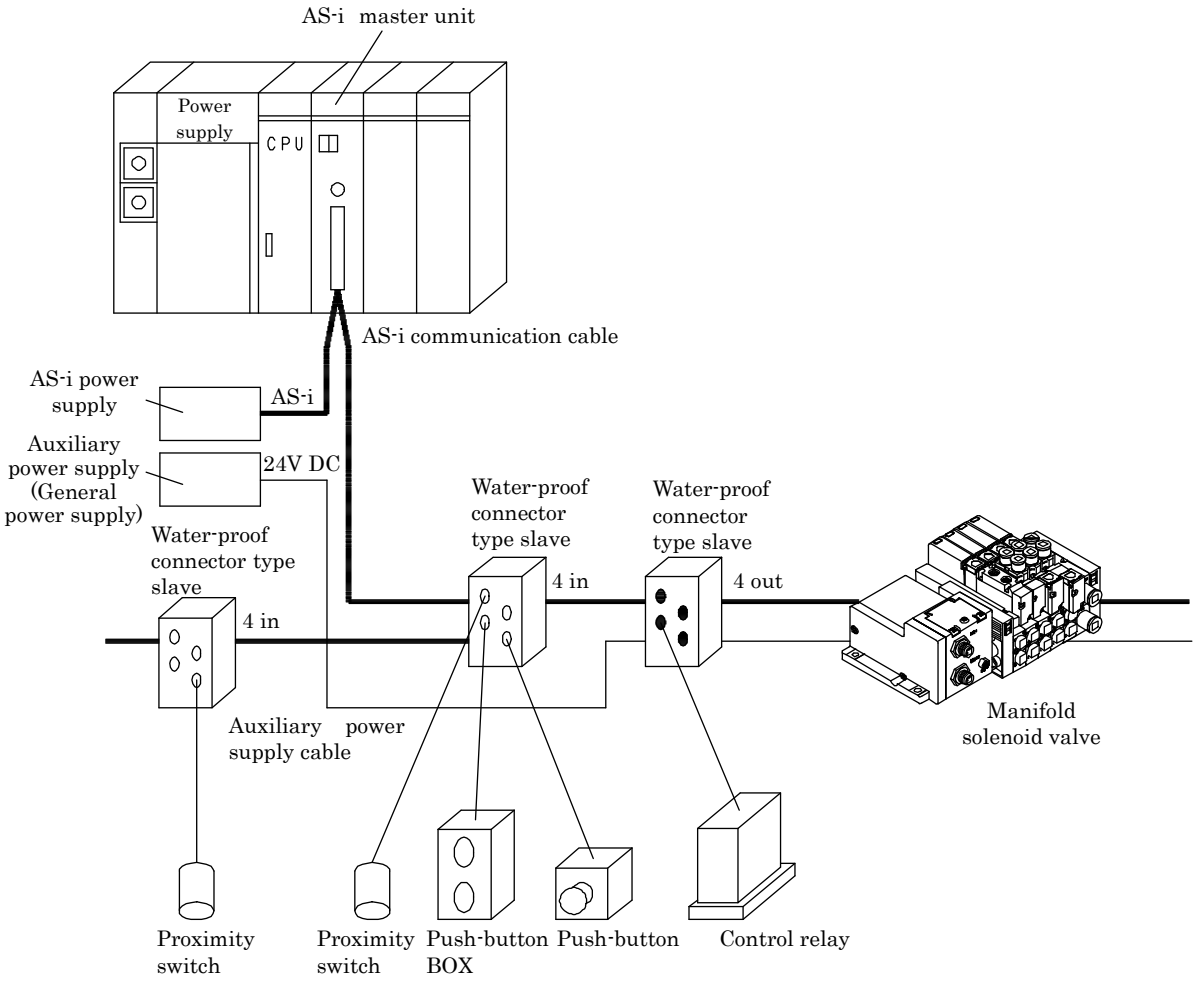
1．2 Structure of the System

This system chiefly consists of PLC body, Master unit, Solenoid valve MW4G※ 2-T8M※ and peripheral equipment.

- Combination of PLC and Master unit

Manufacturer	Type of CPU	Type of Master unit
Mitsubishi Denki CO., LTD.	AnS/A2US series	A1SJ71AS92
	Q2AS series	
Fuji Denki CO., LTD.	MICREX-SX series	NP1L-AS1
	FLEX-PC NJ series	NJ-ASL
	FLEX-PC NB6 series	(Including to CPU unit)
Others	Others	Master station applicable to AS-i

- Fundamental structure of system



1．3 Specifications

1) Specification of solenoid valve

(1) Common specifications

Model No. / Item		W4G2
Media		Compressed air
Valve configuration		Pilot operation
Applicable solenoid valve		Soft spool valve
Minimum working pressure MPa	2 positions	0.2
	3 positions	0.2
Maximum working pressure MPa		0.7
Proof pressure MPa		1.05
Ambient temperature ℃		-5～55
Media temperature ℃		5～55
Manual override		Common (standard) for non-locked and locked types
Pilot air exhaust method	Internal pilot	Common exhaust for main and pilot valves
	External pilot	Individual exhaust for main and pilot valves
Lubrication ※1		Not required
Protection rating ※2		Dust proof and jet-proof (IP65)
Vibration/Impact m/s²		49 or less / 249 or less
Atmosphere		Operation in the presence of corrosive gas not allowed

※1 ： If lubrication is required, use turbine oil ISO VG32 ,1st grade.
Excessive lubrication or intermittent lubrication may cause unstable operation.

※2 ： Based on IP65 (IEC60529[IEC529：1989-11]) standard test method. The sealing ability must be checked before starting operation.

Reference The unit of the pressure is MPa. The conversion rate is "1MPa=10.1972kgf/cm²".

(2) Electrical specifications

Model No. / Item		W4G2
Rated voltage V		DC24
The range of rated voltage fluctuation.		±10%
Holding current A		0.025
Power consumption W		0.6
Heat-proof class		B
Surge absorber		Standard device
Indicator		Standard

(3) Specifications by model

Item			ON	OFF
Response time ms	2 positions	Single	22	24
		Double	26	—
	3 positions	ABR connection	25	35

The response time shown in the table is with the supply pressure of 0.5 MPa and at 20℃ without lubrication. It changes depending on the supply pressure and the type of oil in the case of lubrication.

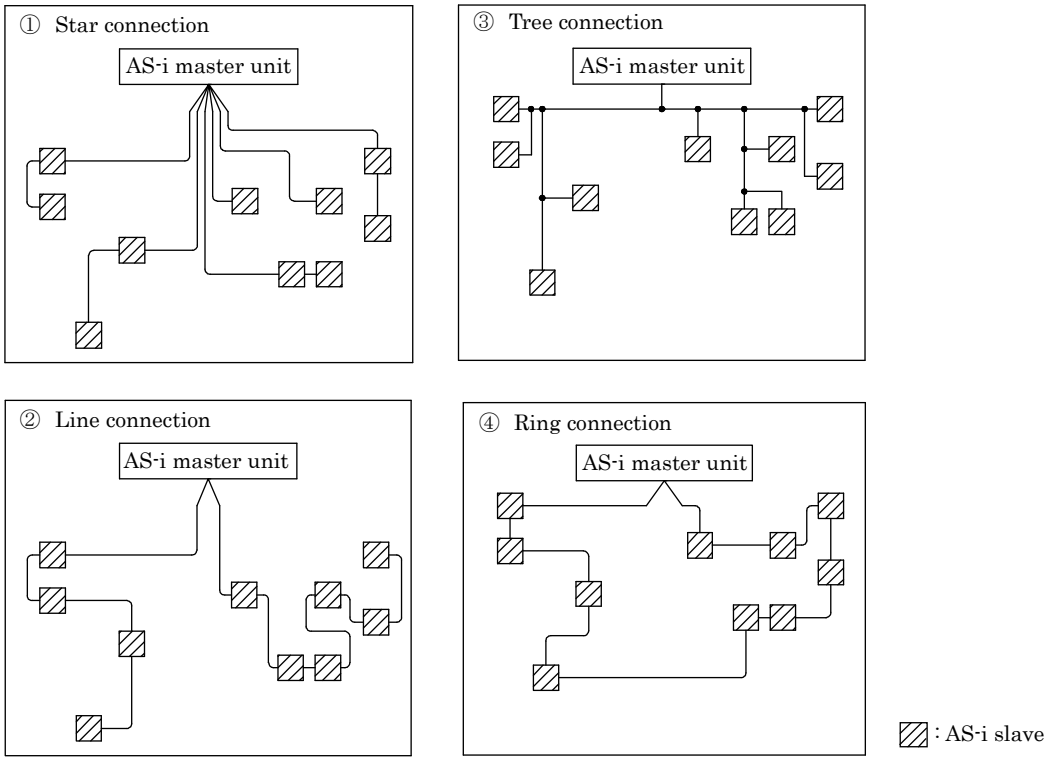
Item	Valve specifications		Change –over position class		P→A/B	A/B→R
Effective sectional area mm²	Sole unit	W4GB2	2 positions		13	13
			3 positions	CC	11	11
				ABR connection	11	13
				PAB connection	15	11
	Manifold	MW4G2 series	2 positions		11	9 (12)
			3 positions	CC	10	10
				ABR connection	10	9 (12)
				PAB connection	12	10

- Values shown in ( ) are those when the exhaust malfunction prevention valve is not installed.
- These values are obtained when the connecting diameter of the A･B port is φ8 push-in joint.

2) Transmission specifications

Item	Specifications
Communication object	In conformity with AS-Interface Ver2.0
Transmission line type	Tree connection/line connection/star connection/ring connection ※1
Transfer distance	Max.100m (300m when using repeater)
Transfer rate	167kbps
Transmission media	AS-i Communication cable (Described in section 4.1)
Cycle time	Max.5msec (31 slave stations are connected.)
Communication power supply	Special AS-I power supply is used. (DC30V)

※1 Connection example of AS-i bus system



3) Slave station specification

Always operate this product within its product specifications.

Item		T8MA	T8M6
Power voltage (AS-i side)		DC26.5V～31.6V (In conformity with AS-i power supply specifications.)	
Electric consumption (AS-i side) ※1		60mA or lower (External source) 220mA or lower(Internal source)	90mA or lower(External source) 290mA or lower(Internal source)
Load current capacity of input block for power supply ※2		160mA or lower (T≦25℃) 125mA or lower (T≦55℃)	200mA or lower (T≦25℃) 160mA or lower(T≦55℃)
Protection circuit of Power supply for input block ※2		Overload and short-circuit protection are built in.	
Power voltage (Valve side)		DC22.8V～26.4V (DC24V +10%, -5%)	
Electric consumption (Valve side)		15mA or lower (While all points are OFF.)	
Insulation resistance		Between all external terminals in a lump and Case 30MΩ or more DC500VM	
Withstanding voltage		Between all external terminals in a lump and Case AC500V for 1minitue	
Noise proof		600Vp-p Pulse width 100nsce, 1μsec	
Vibration proof	Durability	10～150～10Hz 1 octave/min. 15 sweeps in the 3 each axis of X, Y and Z while the half amplitude is 0.75mm or 98m/s² whichever smaller.	
	Wrong operation	10～150～10Hz 1 octave/min. 4 sweeps in the 3 each axis of X, Y and Z while the half amplitude is 0.5mm or 68.6m/s² whichever smaller.	
Shock proof		294m/s² 3directions 3 times	
Ambient temperature		-5～55℃	
Ambient humidity		30～85%RH (No dew fall)	
Working environment		No corrosive gas	
Communication object		In conformity with AS-Interface Ver2.0	
AS-i profile (I/O、ID)		(7、F)	
No. of input and output points (input/output)		(4/4)	(8/8)
No. of monopolized stations		1 station	2 station
Output insulation type		Photo coupler insulation	
Max. load current		40mA /1 station	
Output type		NPN transistor open collector output (If the communication error occurs, the output is turned OFF.)	
Fuse		Power supply for valve：24V 1A （not replaceable）	
Action indicator		LED indication (AS-i power supply、power supply for valve、communication status)	

※1 By the supply method or the power supply for the input block connected with this slave stations, current consumption is different.

・Internal source：When you supply power from the AS-i power supply to the input block.

・External source：When the power supply connector of the input block supplies power.

※2 For an internal source, the protection circuit operates when the current more than the load capacity flows, and the power supply to the connected sensor is cut.

Moreover, for the external source, select the sensor so that load current capacity become it 600mA or less, please.

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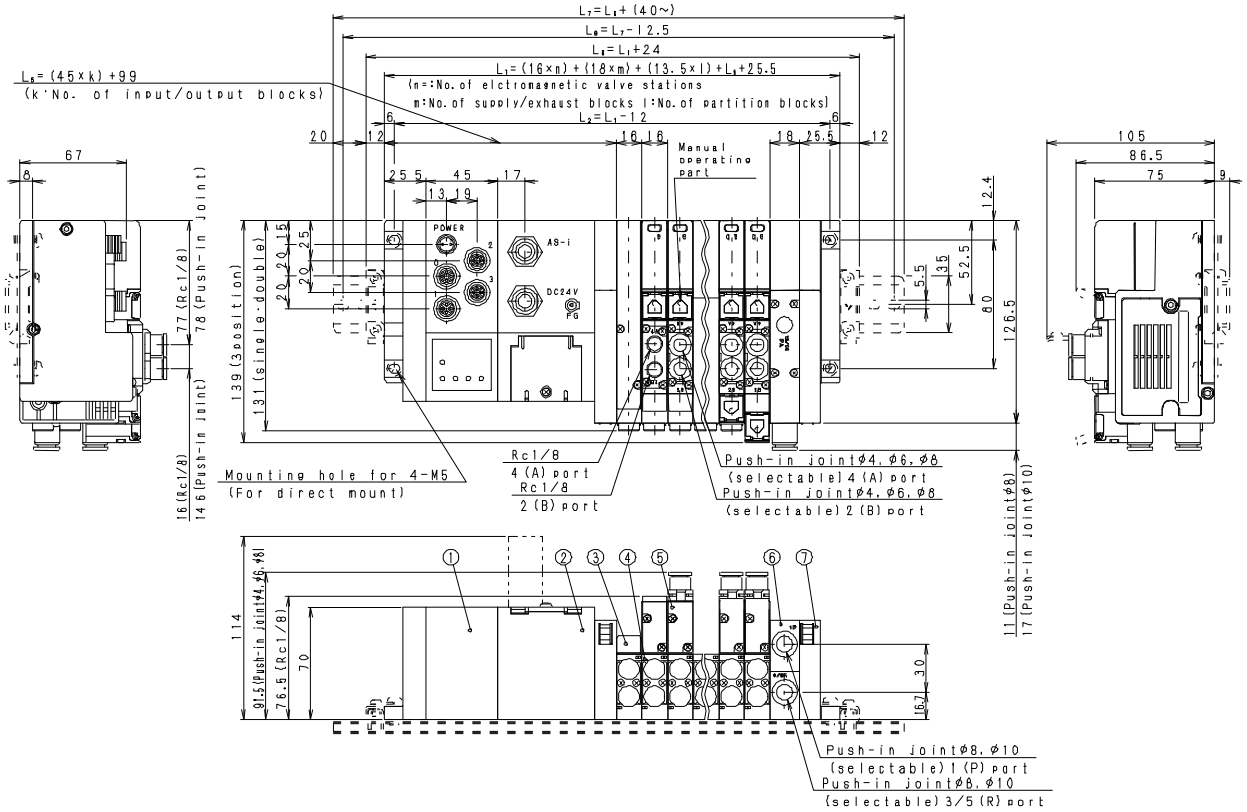
1. 4 External dimensions of solenoid valve

1) Upper wiring type

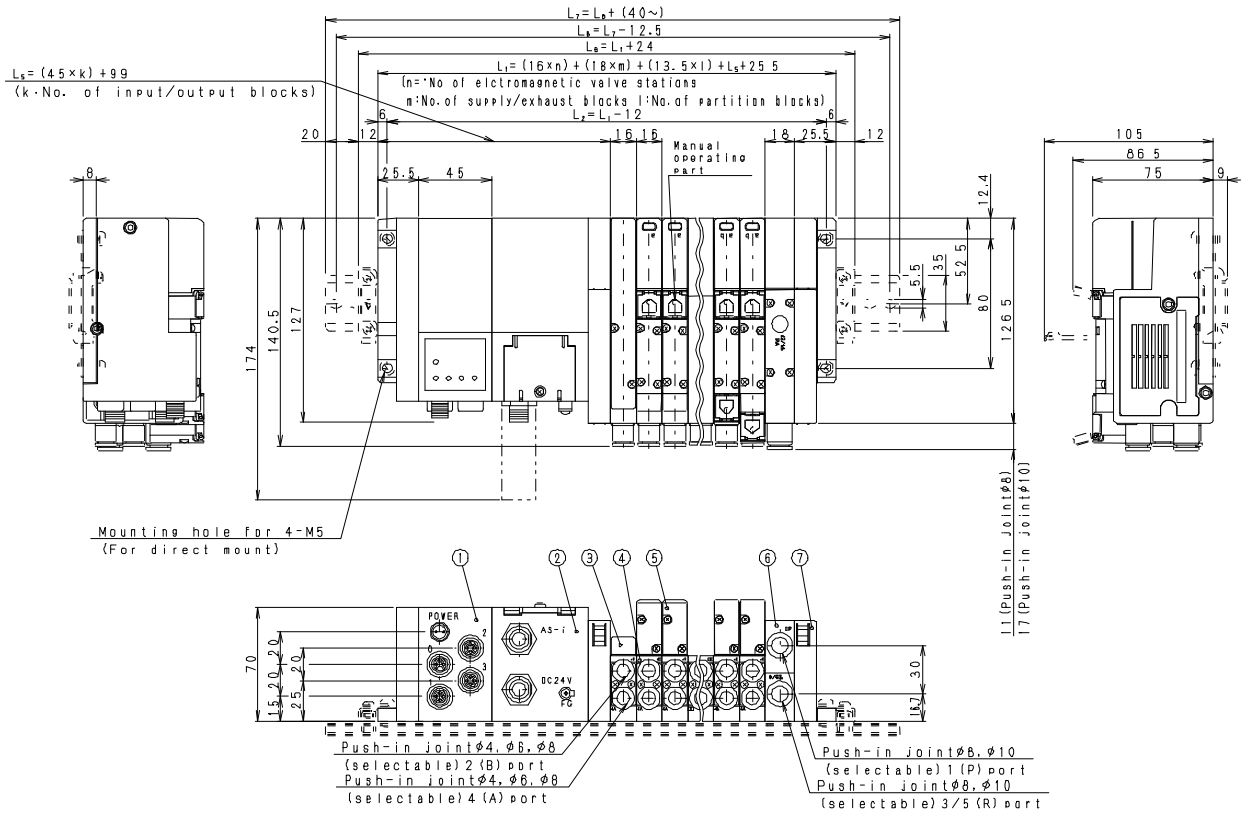
- MW4MA2※0-T8M※



No.	Name of parts
1	Input/Output block
2	Electric component block T8M※
3	Masking plate
4	Valve block
5	Solenoid valve main body
6	Supply/exhaust block
7	End block R

2) Side wiring type

- MW4GB2※0-T8M※



No.	Name of parts
1	Input/Output block
2	Electric component block T8M※
3	Masking plate
4	Valve block
5	Solenoid valve main body
6	Supply/exhaust block
7	End block R

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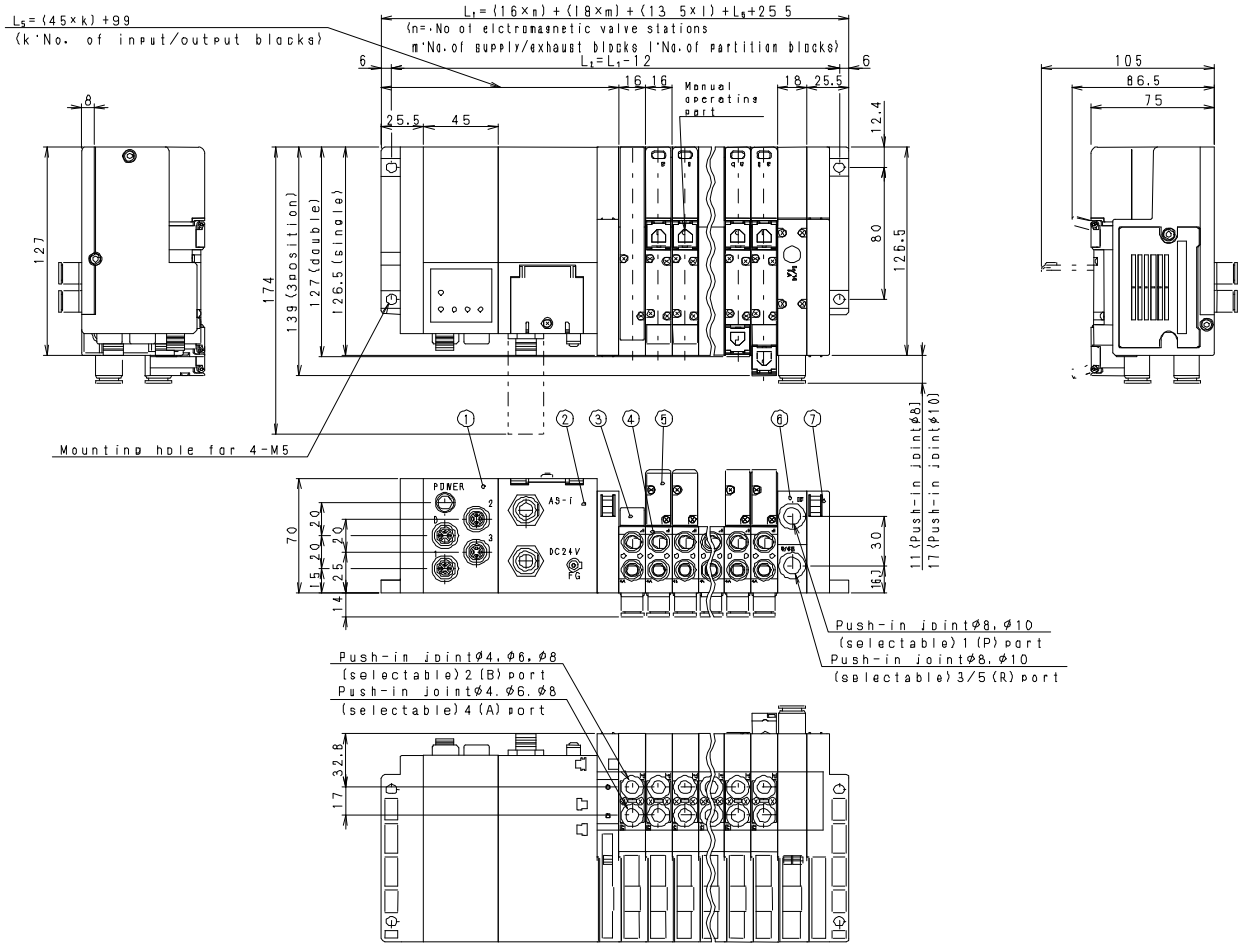
3) Side wiring type

- MW4GZ2※0-T8M※



No.	Name of parts
1	Input/Output block
2	Electric component block T8M※
3	Masking plate
4	Valve block
5	Solenoid valve main body
6	Supply/exhaust block
7	End block R

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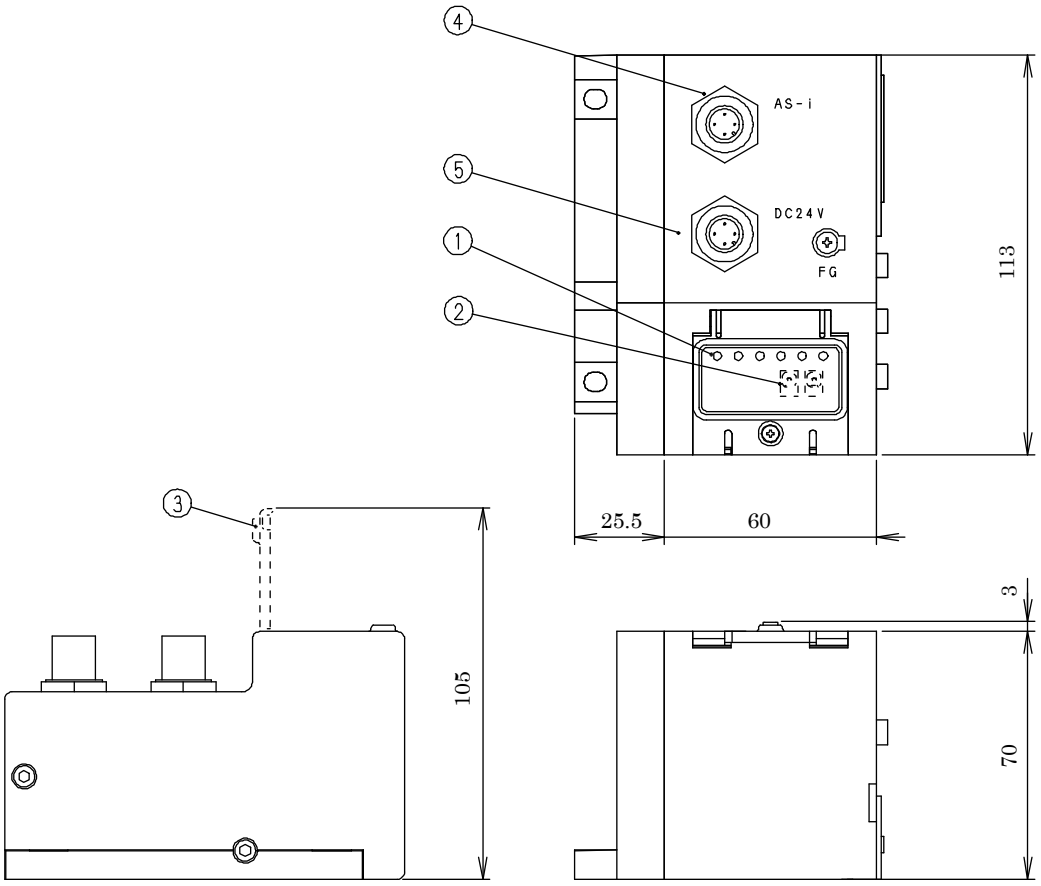
1．5 Outside view of valve slave station



① Monitor lamp
The monitor lamp LED indicates the status of the slave station main body and network

② Address setting jack
The address setting unit is connected to this jack to set the address of this slave station.

③ Switch cover
This switch cover protects the monitor lamp and setting switches.

④ Communication connector for As-i
As-I communication cable and As-I power supply are connected to this connector.

⑤ Connector for auxiliary power supply
The auxiliary power cable (valve power supply) is connected to this connector.

Discontinue

1．6 Indications and address settings

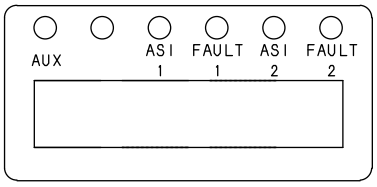
1) Monitor lamp

Various LED lamps are installed in front of station to aid visual verification of operational conditions. Each function is printed on the sheet made of resin. Make use of them during maintenance works or for verification of operation.

	AUX	ASI1 / ASI2 (green)	FAULT1 / FAULT2 (red)	Content of indication
①	☼	☼	●	Normal operation
②	☼	●	●	AS-i power is OFF
③	●	●	●	Both the AS-i power and auxiliary power are OFF.
④	☼	●	☼	Communication stop status.
⑤	☼	◐	☼	Address “0” status
⑥	☼	●	◐	Sensor power overload status ※1

☼: lighting ◐: flashing ●: light out

※1 Overload protection of sensor power supply
If the consumption current flowing through the AS-i power supply is 260 mA or more when the power supply (sensor power supply) of the input block to be connected to this slave station is common to the AS-i power supply, the overload protective circuit is activated and the monitor lamp becomes the display status ⑥. Always select an appropriate sensor so that the consumption current is 250 mA or less.



(switch cover closing status)

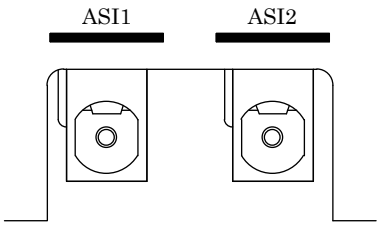
2) Address setting

The address of this slave station is set in a range of 1 to 31. To set the address, the special address setting unit is absolutely required.

For details about how to set the address, refer to section 3.1, Setting of address.

Name	Content of setting
ASI1	Set address on the ASI1 side.
ASI2	Set address on the ASI2 side.

※ ASI1 and ASI2 are names applied for convenience’ sake. For details about input/output data allocations, refer to 1), PLC address correspondence table, in section 3.2.



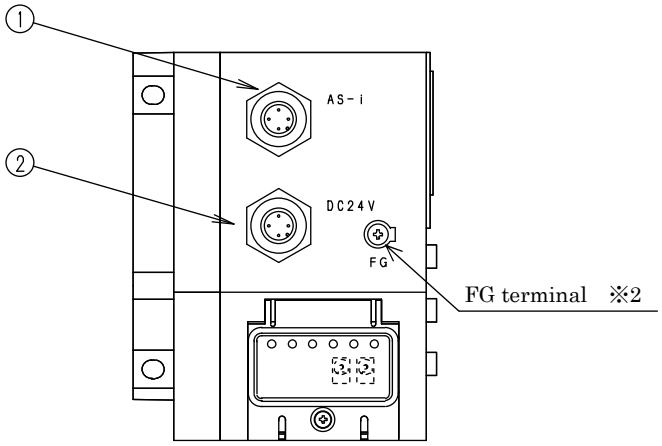
⚠ CAUTION:

- Tighten the switch cover screw with a specified tightening torque (0.3 to 0.4N･m). If the screw is tightened insufficiently, the protection structure may not be kept.
- Keep the cover closed except when you have to change switch positions or reconnect wires. If you keep the cover open unnecessarily, foreign matter may enter the circuit board causing an unexpected failure, or the cover may be broken by accidental contact. While the cover is open as you change switch positions or reconnect wires, be careful not to cause the entry of foreign matter.
- Setting switch has been precisely built. Disorderly handling may cause damage of switch. To set station number, never touch internal circuit printed board.

Discontinue

1．7 connection connector

The wiring of this slave station is performed using the water-proof connector as shown in the Fig.

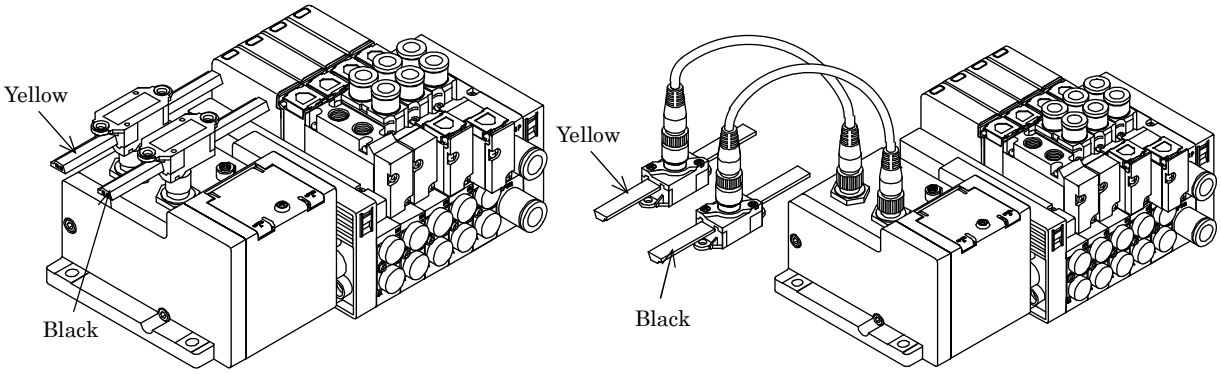


Symbol	Name of connector	Function
①	Connector for AS-i communication connector	The AS-i communication cable (yellow) is connected to this connector. ※1
②	Connector for auxiliary power supply	The auxiliary power cable(black) is connected to this connector. ※1

※1 To connect the AS-i cable, an M12-branch connector is absolutely required. Refer to the connection example shown in the Fig. below.

※2 Keep the FG terminal not connected. (Nothing is connected to this terminal.)

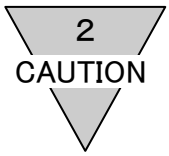
The following shows the connection example.



⚠ CAUTION:

- Touching the electrical wiring connection part (bare live part) may cause an electric shock. Before starting the wiring work, always shut-down the power completely. Additionally, do not touch any electrically live part by wet hand.
- Pay special attention so that any tensile force or impact is not applied to the AS-i communication cable and the auxiliary power cable. Additionally, if the wiring distance is long, unexpected force due to own weight or shock may be applied, causing the unit to break. Therefore, to prevent such troubles, take appropriate measures, such as securing of the wires and cables to the machine.

Discontinue



2. CAUTION

- Refer to User's manual for the master station concerning to transmission delay time. The transmission delay within the entire system depends on the scan time achieved by the PLC unit and on other devices included in the network.
- Solenoid valve responding time, of course, varies depending on model. It is advisable of referring to valve specification.
- As for OFF time, there is another delay factor of approx. 20ms due to flywheel diode being used for surge absorbing circuit to valve slave station.
- Connect the power supply cable and signal cable correctly within the specifications so that any incorrect wiring is not performed.
- Pay special attention so that any tensile force or impact is not applied to the power supply cable and signal cable.
- Before turning ON the power, make sure that the various connection cables and connectors are connected firmly.
- Disassembly, modification, and/or repair made by the customer may cause a trouble or malfunction. Never attempt to disassembly, modify, and/or repair the unit.
- Many precision devices are mounted inside the unit. Do not drop the unit or apply vibration or impact to the unit.
- If any connector is disconnected or connected with the electric power supplied, this may cause a trouble or malfunction. Do not disconnect or connect any connector with the electric power supplied.

Discontinue

3. OPERATION

3. 1 Address setting

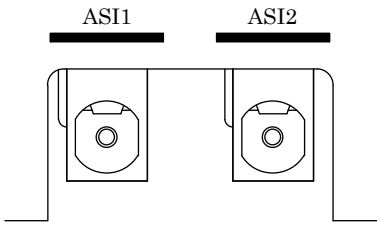
When setting an address on this slave station, use the special address setting unit. The following describes how to set an address.

Connect this slave station and address setting unit with the conversion cable for the address setting.

Insert the plug of this conversion cable into the address setting jack of this slave station, and then set a desired address ranging from 1 to 31.

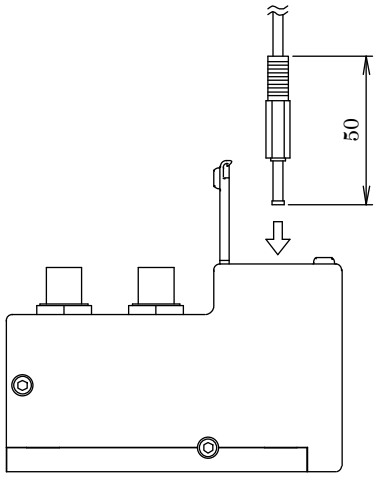
At this time, do not set any duplicated address.

(The default setting at shipment from the factory is 0.)



ASI1： Address setting jack on the ASI1 side

ASI2： Address setting jack on the ASI2 side



Typical example

- Address setting unit
  FL1H-E Fuji Electric Co., Ltd.
- Conversion cable for address setting
  FX9Y002 Fuji Electric Co., Ltd.

⚠ CAUTION :

- A slave for two channels is built-into the T8M6 (8-point input/8-point output). Always set two addresses, ASI1 and ASI2.
- The address setting jack for the ASI2 is not mounted on the AST8MA (4-point input/4-point output).
- This slave station conforms to the communication specifications Ver. 2.0. Therefore, it is not possible to set this slave station as A/B slave in conformity with the communication specifications Ver. 2.1.
- A slave for two channels is built-into the T8M6 (8-point input/8-point output). Therefore, it is not possible to use the automatic address setting function when replacing the slave station (when operated in the protect mode).
- Tighten the switch cover screw with a specified tightening torque (0.3 to 0.4N·m). If the screw is tightened insufficiently, the protection structure may not be kept.
- Keep the cover closed except when you have to change switch positions or reconnect wires. If you keep the cover open unnecessarily, foreign matter may enter the circuit board causing an unexpected failure, or the cover may be broken by accidental contact. While the cover is open as you change switch positions or reconnect wires, be careful not to cause the entry of foreign matter.
- Address setting jack has been precisely built. Disorderly handling may cause damage of switch. To set station number, never touch internal circuit printed board.

Discontinue

3. 2 Correspondence between slave station input/output No. and PLC address No.

1) PLC address correspondence table

This table shows the correspondence assuming that the serial transmission slave station is set at station No.1.

When using Fuji Electric's master unit

Memory address of the master unit

Type of slave station	Input block	Output block	09 (0–15)	17 (0–15)
			Serial-transmission slave station I/O No.	
			ASI 1: 0 1 2 3 / ASI 2: 8 9 10 11	ASI 1: 4 5 6 7 / ASI 2: 12 13 14 15
T8MA	1 unit	—	1-0 1-1 1-2 1-3	s1 s2 s3 s4
T8M6	1 unit	—	1-0 1-1 1-2 1-3	s1 s2 s3 s4
		1 unit		s5 s6 s7 s8 / 2-0 2-1 2-2 2-3
	2 unit	—	1-0 1-1 1-2 1-3 2-0 2-1 2-2 2-3	s1 s2 s3 s4
		1 unit		s5 s6 s7 s8 / 3-0 3-1 3-2 3-3

Example 1

Example 2

※One field by bold lines shows one input/output block.

: input block : output block : solenoid output

When using Fuji Electric's master unit

Buffer memory address of the master unit (A1SJ71AS92)

Type of slave station	Input block	Output block	1H (0–15)	31H (0–15)
			Serial-transmission slave station I/O No.	
			ASI 1: 0 1 2 3 / ASI 2: 8 9 10 11	ASI 1: 4 5 6 7 / ASI 2: 12 13 14 15
T8MA	1 unit	—	1-0 1-1 1-2 1-3	s1 s2 s3 s4
T8M6	1 unit	—	1-0 1-1 1-2 1-3	s1 s2 s3 s4
		1 unit		s5 s6 s7 s8 / 2-0 2-1 2-2 2-3
	2 unit	—	1-0 1-1 1-2 1-3 2-0 2-1 2-2 2-3	s1 s2 s3 s4
		1 unit		s5 s6 s7 s8 / 3-0 3-1 3-2 3-3

Example 1

Example 2

※One field by bold lines shows one input/output block.

: input block : output block : solenoid output

How to read the table

① Check the type of the serial transmission slave station to be used and the connection style of the input/output block.
② Read out the PLC address corresponding to each input/output point of the unit on the table.

(Example 1) ＜Style＞ Serial-transmission slave station: T8M1、Input block: 1 unit、Output block: 0 unit

《Input point》 First input block No.2 ⇒ 《Address》 Buffer memory 1H-No.2 (Mitsubishi Denki Co., Ltd.)
《Address》 Buffer memory 09-No.2 (Fuji Denki Co., Ltd.)

《Output point》 Solenoid output No.4 ⇒ 《Address》 Buffer memory 31H-No.3(Mitsubishi Denki Co., Ltd.)
《Address》 Buffer memory 17-No.3 (Fuji Denki, Co., Ltd.)

(Example 2) ＜Style＞ Serial-transmission slave station: T8M6、Input block: 2 unit、Output block: 1 unit

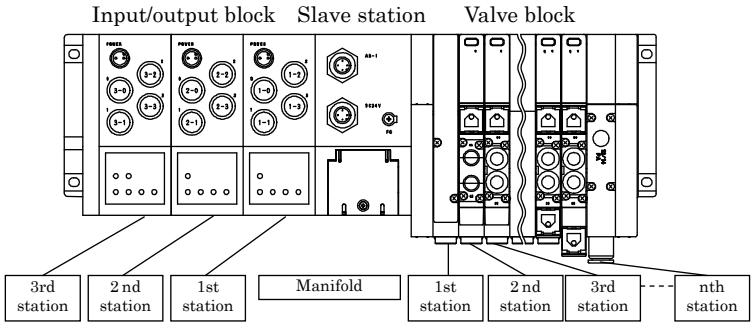
《Input point》 Second input block No.2 ⇒ 《Address》 Buffer memory 1H-No.6 (Mitsubishi Denki Co., Ltd.)
《Address》 Buffer memory 09-No.6 (Fuji Denki, Co., Ltd.)

《Output point》 Third input block No.3 ⇒ 《Address》 Buffer memory 31H-No.7(Mitsubishi Denki Co., Ltd.)
《Address》 Buffer memory 17-No.7 (Fuji Denki Co., Ltd.)

Discontinue

How to count the number of manifold stations.

・The solenoid valve manifold station No. is set sequentially from the left with the piping port put on the front regardless of the wiring block position.
・The manifold station No. of the optional input/output block(NW4G※ 2-IN/OUT) is set sequentially from the slave station side. When the input block and output block are mixed, the manifold station No. is set after the input blocks have been arranged first.



※ This is a diagram that describes the station number. The station numbers larger than those actually used are described.

2) Valve No. assignments corresponding to T8M※ solenoid output No. (Example)

※ The numbers in valve No. 1a, 2a, 2b… indicate the station No.1 station No.2 and so on, while the alphabets (a) and (b) mean, respectively the solenoid on the side (a) and the solenoid on the side (b). The maximum number of stations on the manifold differs among the models. Refer to the specifications of the model you selected.

<Standard wiring>

● For single solenoid valve（Corresponds with up to the 8th manifold block.）

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																								

● 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																								

● For mixed installation of single and double solenoid valve 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																								

<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	※1	2a	※1	3a	※1	4a	※1																								

● 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																								

● For mixed installation of single and double solenoid valve 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	※1	2a	※1	3a	3b	4a	4b																								

※1 : Not used

Discontinue

3. 3 Programming

This slave station unit is seen as

4 point input / 4 point output unit…T8MA (The unit monopolizes the position of a single station.)

8 point input / 8 point output unit…T8M6 (The unit monopolizes double station.)

When creating programs, refer to master unit's user's manual.

Discontinue

4. INSTALLATION

4. 1 Installation

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

- Mount the solenoid valve by applying the mounting screws and/or mounting plate to the solenoid valve.

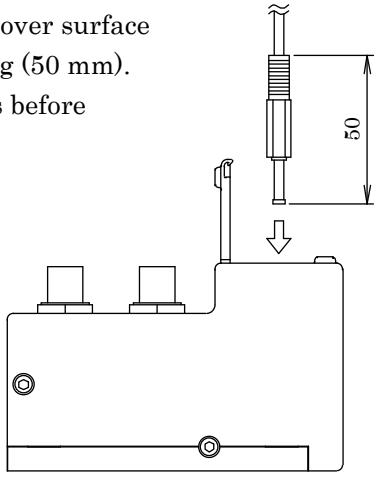
⚠ CAUTION : If you choose to mount the solenoid valve manifold on a DIN rail, make sure that the DIN rail is strong enough.

(Reference)

When setting an address after this slave station has been installed, keep a clearance of 70 mm or more from the switch cover surface by considering the length of the conversion cable plug (50 mm). If the above clearance cannot be kept, set an address before installing the slave station.

Typical example

- Address setting unit
  FL1H-E Fuji Denki Co., Ltd.
- Conversion cable for address setting
  FX9Y002 Fuji Denki Co., Ltd.

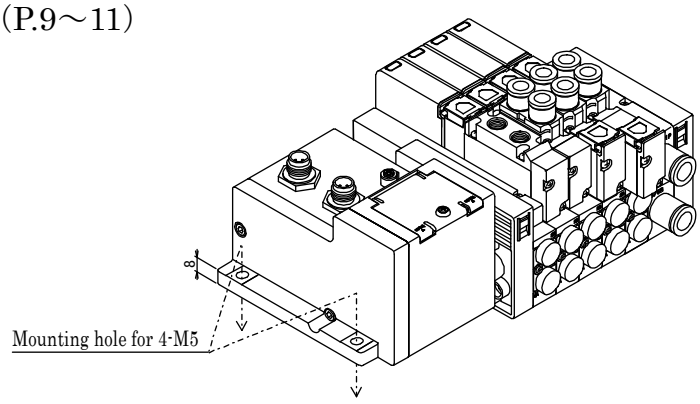


4.1.1 Please secure an enough space around the solenoid valve for mounting, dismounting and piping work.

4.1.2 In case of installing directly

Mount the master station on the mounting hole by using the screw. (M5 screw, appropriate tightening torque: 1.2N･m)

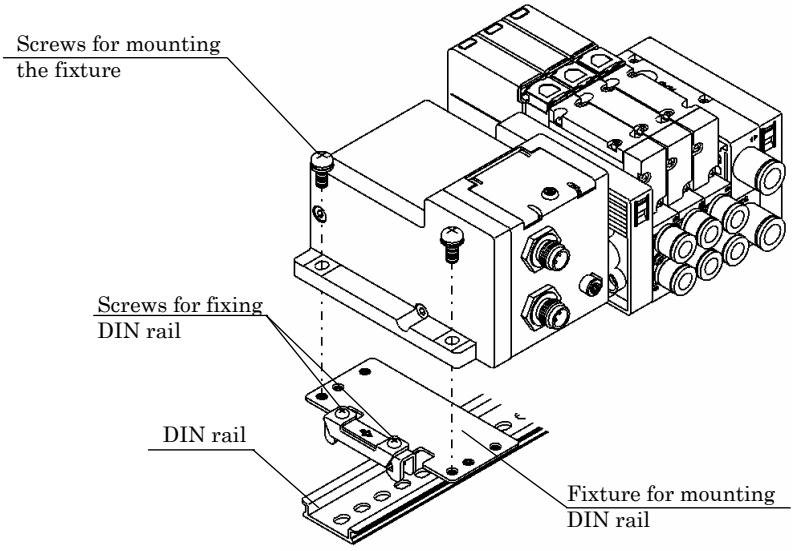
For the mounting hole pitch, see section 1.4, Outside dimensions of solenoid valve. (P.9～11)



Discontinue

4.1.3 In case of installing by means of DIN rail

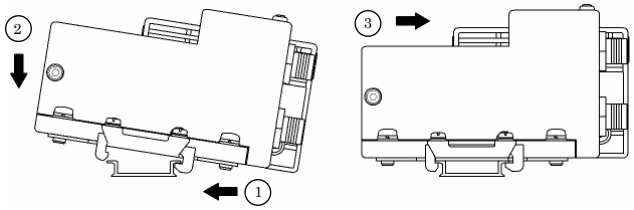
For W4G2 Series, you can change the manifold of direct mounting type to DIN rail mounting type. If not counted properly, dropping down of the manifold or damage to it may be caused, to which please pay your careful attention. In addition, in case of the gross weight of manifold exceeding 1.0kg or it is installed in an environment where vibration or shock occurs, fix DIN rail to the mounting face with a distance of 50 – 100mm. Make sure that the installation has been carried out completely and then start using. There is no restriction to the mounting direction or mounting posture, but the mounting screws may become loose due to resonance with any vibration which may cause the manifold to drop down. Please pay your careful attention to this point when operating.



●How to mount DIN rail

1. Fit the fixtures for mounting DIN rail (Tightening torque: 1.8 – 2.3N・m)
2. Hook the jaws on DIN rail in the order of ① and ②.
3. Push toward ③ direction.
4. Tighten the screws for fixing DIN rail.

(Tightening torque: 1.2 – 1.6N・m)



Discontinue

4. 2 Wiring

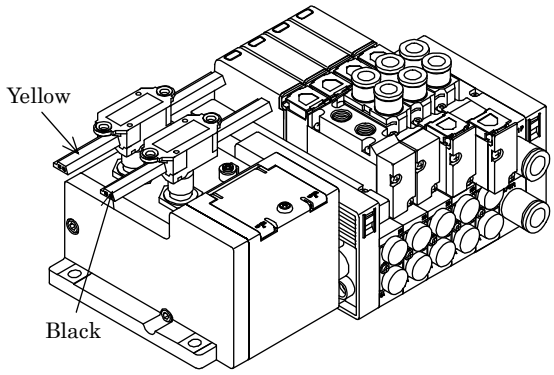
It is required to connect AS-i communication cable and auxiliary power supply cable to make this model MW4G※2-T8M※ function. Erroneous connection cases not only malfunction but in some cases, vital transmission damage to this station including other related devices. Read and understand the content of each User's manual for AS-i master unit, as well as reading this manual to accomplish correct wiring.

⚠ CAUTION :

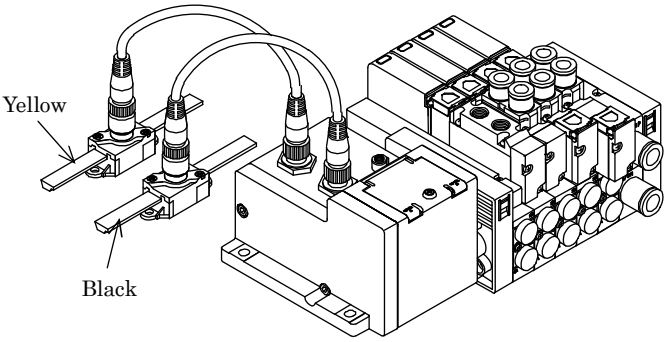
- Touching the electrical wiring connection part (bare live part) may cause an electric shock. Before starting the wiring work, always shut-down the power completely. Additionally, do not touch any electrically live part by wet hand.
- Pay special attention so that any tensile force or impact is not applied to the power cable and communication cable. Additionally, if the wiring distance is long, unexpected force due to own weight or shock may be applied, causing the unit to break. Therefore, to prevent such troubles, take appropriate measures, such as securing of the wires and cables to the machine.

1) Connecting

The T-branch connection can be made using the M12 branch connector. The following shows connection examples.



Direct connection of M12 branch connector



Connection with connector having cable

(Reference)

For the AS-i communication cable, the special flat type cable, as well as general round type cable can be used.

The standard transmission distance is 100 m. However, when using the repeater or extender, this distance can be extended to 300 m.

⚠ CAUTION:

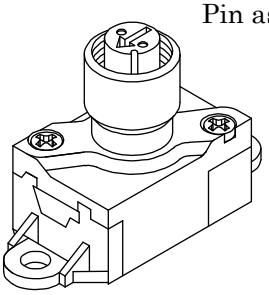
- The AS-i communication cable does not need any terminating resistor. However, the cable ends are processed appropriately so that no core conductors are exposed.
- There are various limitations on the maximum transmission distance and connection method. Always perform the wiring work carefully while referring to the User's Manual for the master unit.

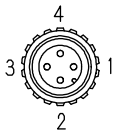
Discontinue

① M12 branch connector

Connect the AS-i communication and auxiliary power cables to this slave station after they have been turned OFF.

Pin assignments of M12 socket



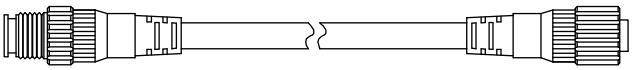


Pin No.	Signal name	
	AS-I communication cable	Auxiliary power supply cable
1	AS-i ＋	V
2	N.C	N.C
3	AS-i －	G
4	N.C	N.C

Typical example : 3RX9801-0AA00 Fuji Electric Co., Ltd.

② Connector with cable

Connect the cables after the AS-i power and auxiliary power have been turned OFF.



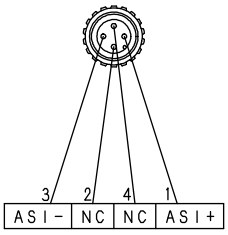
Recommended connector

Connector with cable

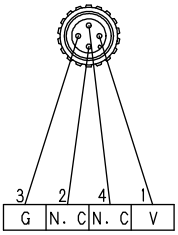
・ XS2W-D421-※

(Connectors on both sides of the socket/plug)

Omron corporation



AS-i communication cable



Auxiliary power cable

Pin No.	Signal name	Remarks
1	AS-i ＋	AS-i communication line ＋side
2	N.C	Not used
3	AS-i －	AS-i communication line －side
4	N.C	Not used

Pin No.	Signal name	Remarks
1	V	Valve power supply ＋side
2	N.C	Not used
3	G	Valve power supply －side
4	N.C	Not used

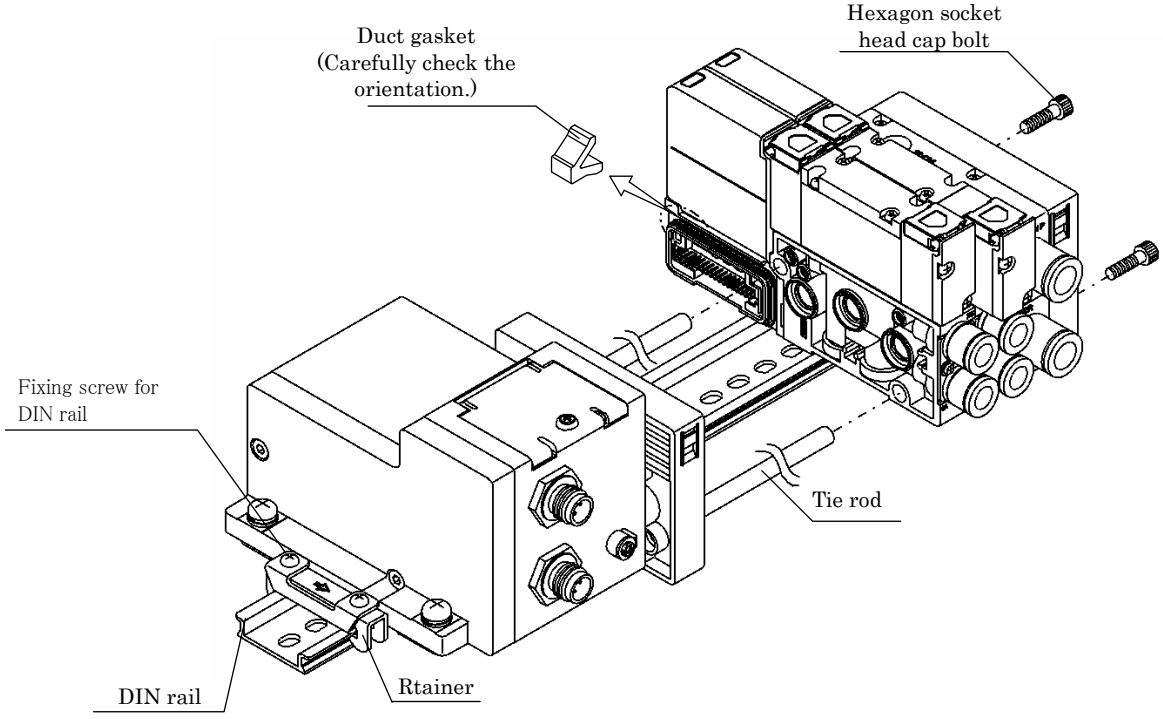
Discontinue

5. MAINTENANCE

5. 1 Disassembling and reassembling this product (slave station)

- Slave station(NW4G※2-T8M※)

(1) Loosen the fixing screws on DIN rail of retainer.
(2) Remove the hexagon socket bolts (2 bolts).
(3) Separate the serial transmission blocks and pull out the tie rod.
(4) Pass the serial transmission block through the tie rod and push it between the adjacent blocks without leaving any clearance and then connect.
(5) Make sure that all blocks have been connected without leaving any clearance, and then tighten the hexagon socket bolts.
(Proper tightening torque: 1.1 - 1.3N・m)
(6) Hook the retainer jaw on DIN rail securely, push in the direction of arrow indicated on the retainer and tighten the fixing screws of DIN rail.
(Proper tightening torque: 1.2 - 1.6N・m)



CAUTION :

- Avoid pulling out the slave station while pulling the cable or connector; otherwise, broken circuit and damage may result.
- Touching the electrical wiring connection part (bare live part) may cause an electric shock.

Discontinue

5. 2 Troubleshooting

Troubleshooting should address the entire system rather than a particular slave station. The status of this slave station is shown using three kinds of monitor lamps (AUX/ASI/FAULT). Check the contents of the error according to these indications and the display of the master unit, and then take appropriate actions.

At this time, refer also to the User's Manual for relevant master unit.

The following shows the display contents of the monitor lamps and corrective actions to be taken.

Status of monitor lamps			Operating conditions	Cause	corrective action
AUX	ASI1 /ASI2	FAULT1 / FAULT2			
☼	☼	●	The power supply and communication are correct.	–	–
●	–	–	No auxiliary power supply is provided.	The power is not supplied correctly from the auxiliary power supply.	Check that the auxiliary power supply is correct.
–				The fuse built-into the slave station is blown up.	Replace the slave station with a new one.
–			The auxiliary power cable is not connected to the slave station.	The cable connection is faulty.	Check that the wiring and connection of the auxiliary power cable (black) are correct.
–	●	●	No AS-i power supply is provided on the slave station.	The power is not supplied correctly from the AS-i power supply.	Check that the AS-i power supply is correct.
			The AS-i communication cable is not connected to the slave station.	The cable connection to the slave station is faulty.	Check that the wiring and connection of the AS-i communication cable (yellow) are correct.
–	◐	☼	The address of the slave station is set at "0".	The address is not set.	Set the address.
–	●	☼	The slave station has the power supply and the master does not have any power supply.	The power is not supplied to the master.	Check that the master power supply is correct.
				The master malfunctions.	Replace the master with a new one.
			The AS-i communication cable has faulty wiring.	The AS-i communication cable has faulty wiring.	Check that the wiring and connection of the AS-i communication cable are correct.
–	●	◐	The sensor power supply is overloaded.	The input unit or the power wiring to the input unit is short-circuited or overloaded.	Check the wiring and consumption current on the input side.

☼: lighting ◐: flashing ●: light out

Discontinue

The following shows other errors.

(1) Address is duplicated

- If the address is duplicated when the power is turned ON, an appropriate error detection circuit is created using the PLC application software. The AS-i cannot detect the duplicated address.
- If the slave station having the duplicated address is added, the communication error occurs in the slave station, which has been added later.

(2) The cable is short-circuited.

- If the AS-i communication cable is short-circuited
  The communication of the AS-i is stopped. After the cause of the short-circuit trouble has been removed and the power has been reset, the communication is started again. (The short-circuit protective circuit is built-into the AS-i power supply.)

Discontinue

6. HOW TO ORDER

- Manifold

MW (4) G (A) (2) (1) 0 – (C8) – (T8MA) (W) (H) (D) – (4) – (3)

(a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k)

(a) No. of port		(b) Piping direction		(c) Series model		(d) Operator type	
Code	Description	Code	Description	Code	Description	Code	Description
3	3 port valve	A	Top porting(Direct piping)	2	MW4G2	1	2-position single
4	5 port valve	B	Side porting(Base piping)			2	2-position double
		Z	Back porting(Base piping)			3	3-position CC
						4	3-position ABR
						5	3-position PAB
						1	Normal close NC (3GA)
						11	Normal open NO (3GA)
						8	Mix

(e)Connecting port diameter		(f)Wiring type		(g) Pin layout		(h) Option	
Code	Description	Code	Description	Code	Description	Code	Description
See table 1 (※1)		T8MA	4point output/input	No code	Standard	No code	No option
		T8M6	8point output/input	W	Double wiring type	M	Manual override of non-locked type
						M7	Manual override with OFF function
						H	Wrong operation prevention valve(※2)
						K	External pilot
						A	Ozone and cutting oil
						F	Built-in A･B port filters
						Y※※	Input/output block(※3)

(i) Mount type		(j) No. of stations		(k) Voltage	
Symbol	Description	Code	Description	Code	Description
No mark	Direct mount	2～16	No. of stations	3	DC24V (※4)
D	DIN rail mount				

Table 1: (e) Connecting port

	Symbol	Connection specifications	MW4GA2	MW4GB2	MW4GZ2
A/B Port	C4	One-touch joint ϕ4	●	●	●
	C6	One-touch joint ϕ6	●	●	●
	C8	One-touch joint ϕ8	●	●	●
	06	Rc1/8	●		
	CL6	One-touch joint L-shape ϕ6		●	
	CL8	One-touch joint L-shape ϕ8		●	
P/R Port (one-touch joint)			ϕ8, ϕ8 L-shape ϕ10, ϕ10 L-shape		

※1 The diameter of the P･R port is specified by the air intake/exhaust block.

※2 For the 3-position all-port block and PAB connection, valve specifications(H) for the malfunction prevention are not available.

※3 A numeric value showing the combination of continuos number of input/output block stations is put in ※※.

※4 For the serial transmission connection specifications, AC 100V and DC12V settings are not provided.
For details, check the catalog.