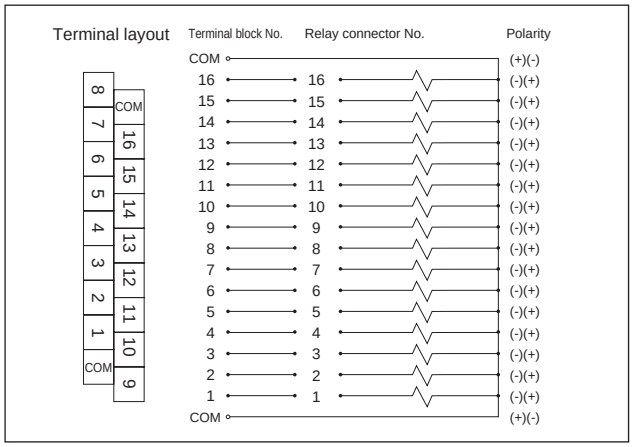
Common terminal box (wiring method T10)

Notes on wiring

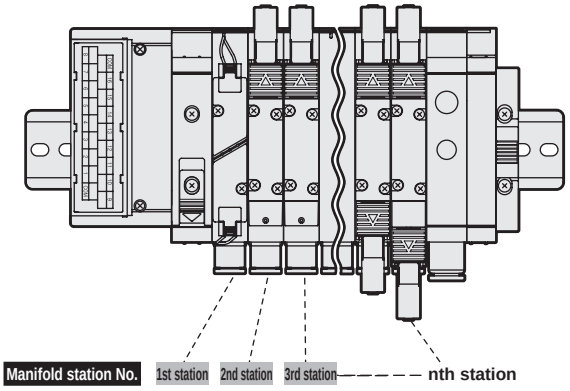
[Precautions for common terminal box (T10)]

(1) With the common terminal box, the common wiring is internally processed beforehand.
When using the independent contact PLC output unit, wire the common wires at the contact section.
(2) Check the correspondence of the number of stations with solenoid positions to prevent incorrect wiring.
(Refer to the table below.)
(3) Note that the correspondence will not function if the number of solenoid stations exceeds 16.
(4) The manifold station numbers are set in order from left with the piping port facing forward.
(5) A voltage drop may occur due to simultaneous energizing or cable length. Confirm that the voltage drop for the solenoid is within 10% of the rated voltage.

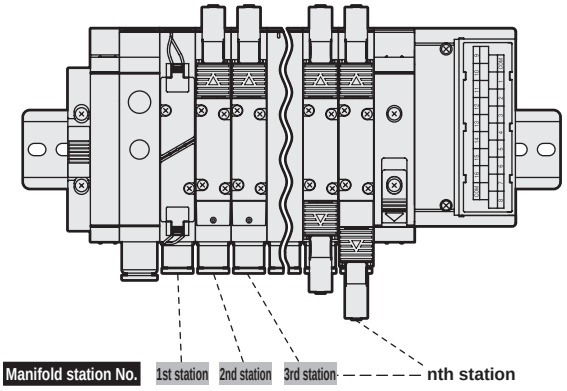
Internal wiring of wiring method T10 (up to 16 solenoid stations)



T10 (left side specifications)



T10R (right side specifications)



Terminal array of wiring method T10 (example)

*: The numerals of valve numbers 1a, 1b, 2a, 2b ... indicate the order of stations first station, second station... and the letters “a” and “b” indicate the “a side” solenoid and “b side” solenoid, respectively.
The manifold’s max. station number differs depending on the model.
Check the specifications of each model.

Terminal No.

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

● For single solenoid valve

[Standard wiring]

Terminal block No.	16	15	14	13	12	11	10	9
Valve No.	16a	15a	14a	13a	12a	11a	10a	9a
Terminal block No.	8	7	6	5	4	3	2	1
Valve No.	8a	7a	6a	5a	4a	3a	2a	1a

[Double wiring]

Terminal block No.	16	15	14	13	12	11	10	9
Valve No.	(Blank)	8a	(Blank)	7a	(Blank)	6a	(Blank)	5a
Terminal block No.	8	7	6	5	4	3	2	1
Valve No.	(Blank)	4a	(Blank)	3a	(Blank)	2a	(Blank)	1a

● For double solenoid valve

Terminal block No.	16	15	14	13	12	11	10	9
Valve No.	8b	8a	7b	7a	6b	6a	5b	5a
Terminal block No.	8	7	6	5	4	3	2	1
Valve No.	4b	4a	3b	3a	2b	2a	1b	1a

Terminal block No.	16	15	14	13	12	11	10	9
Valve No.	8b	8a	7b	7a	6b	6a	5b	5a
Terminal block No.	8	7	6	5	4	3	2	1
Valve No.	4b	4a	3b	3a	2b	2a	1b	1a

● For mixed use (single/double mixture)

Terminal block No.	16	15	14	13	12	11	10	9
Valve No.	11b	11a	10a	9a	8a	7b	7a	6a
Terminal block No.	8	7	6	5	4	3	2	1
Valve No.	5b	5a	4b	4a	3b	3a	2a	1a

Terminal block No.	16	15	14	13	12	11	10	9
Valve No.	(Blank)	8a	7b	7a	(Blank)	6a	5b	5a
Terminal block No.	8	7	6	5	4	3	2	1
Valve No.	4b	4a	3b	3a	(Blank)	2a	(Blank)	1a

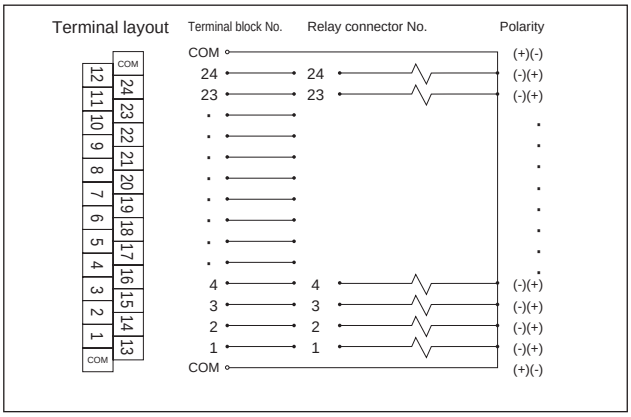
Common terminal box (wiring method T11)

Notes on wiring

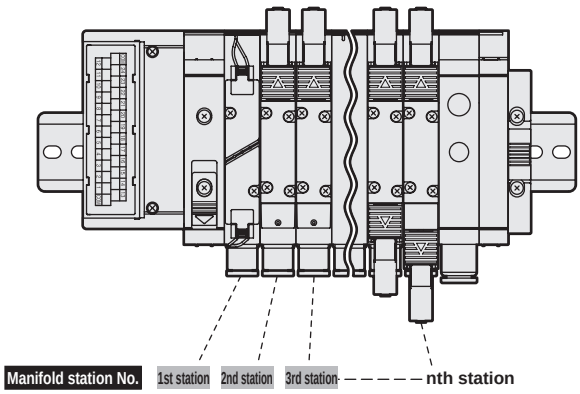
[Precautions for common terminal box (T11)]

(1) With the common terminal box, the common wiring is internally processed beforehand.
When using the independent contact PLC output unit, wire the common wires at the contact section.
(2) Check the correspondence of the number of stations with solenoid positions to prevent incorrect wiring.
(Refer to the table below.)
(3) Note that the correspondence will not function if the number of solenoid stations exceeds 24.
(4) The manifold station numbers are set in order from left with the piping port facing forward.
(5) A voltage drop may occur due to simultaneous energizing or cable length. Confirm that the voltage drop for the solenoid is within 10% of the rated voltage.

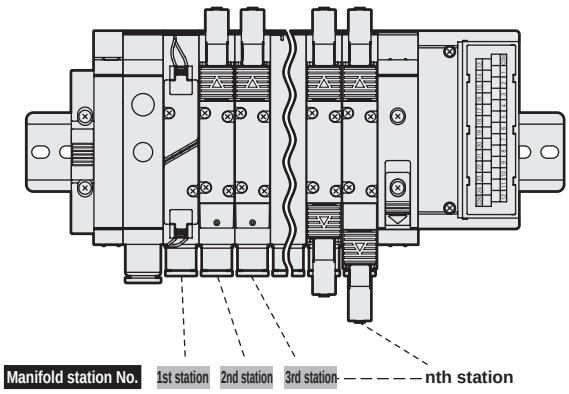
Internal wiring of wiring method T11 (up to 24 solenoid stations)



T11 (left side specifications)



T11R (right side specifications)



Terminal array of wiring method T11 (example)

*: The numerals of valve numbers 1a, 1b, 2a, 2b ... indicate the order of stations first station, second station... and the letters “a” and “b” indicate the “a side” solenoid and “b side” solenoid, respectively.
The manifold’s max. station number differs depending on the model.
Check the specifications of each model.

Terminal No.

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

● For single solenoid valve

[Standard wiring]

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

[Double wiring]

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

● For double solenoid valve

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

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

● For mixed use (single/double mixture)

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

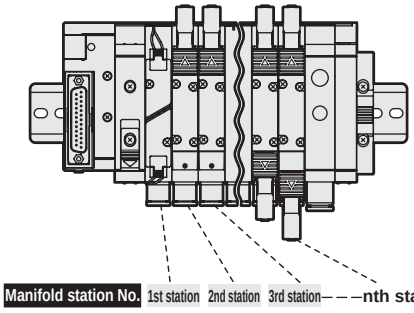
Terminal block No.	24	23	22	21	20	19	18	17	16	15	14	13
Valve No.	12b	12a	11b	11a	(Blank)	10a	(Blank)	9a	(Blank)	8a	7b	7a
Terminal block No.	12	11	10	9	8	7	6	5	4	3	2	1
Valve No.	(Blank)	6a	(Blank)	5a	4b	4a	3b	3a	(Blank)	2a	(Blank)	1a

D-sub-connector (Wiring method T30)

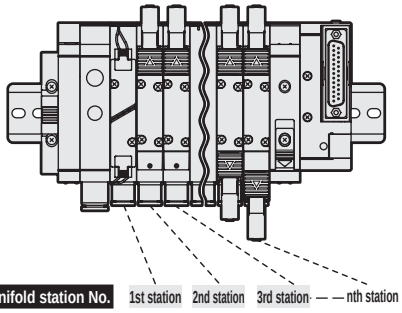
T30 Connectors

The connector used for T30 wiring, called a D-sub-connector, is used widely for FA and OA devices. The 25P in particular is also an RS-232-C Standards designated connector, used for personal computer communication. The manifold station numbers are set in order from left with the piping port facing forward.

T30 (left side specifications)

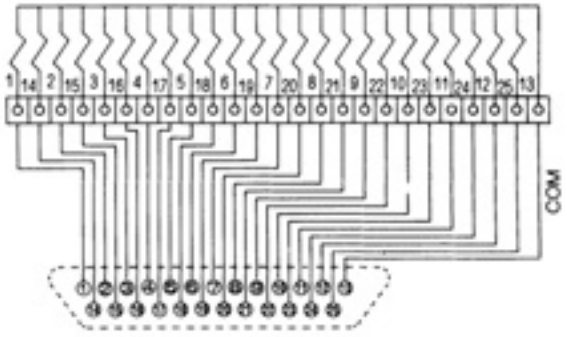


T30R (right side specifications)



Precautions for connector T30

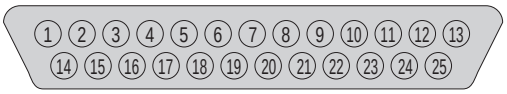
(1) Signal arrays of the PLC output unit must match signal arrays on the valve side.
(2) The working power is 12/24 VDC dedicated.
(3) A voltage drop may occur due to simultaneous energizing or cable length. Confirm that the voltage drop for the solenoid is within 10% of the rated voltage.



Connector pin array (example) of wiring method T30

*1: The numbers on valves No.1a, 1b, 2a, 2b ... indicate the 1st and 2nd stations, and alphabets “a” and “b” indicate the “a” side and “b” side solenoids, respectively. The manifold’s max. station number differs depending on the model. Check the specifications of each model.

Connector pin No.



[Standard wiring]

● For single solenoid valve only

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.	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	

● For double solenoid valve only

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	

● For mixed use (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.	(Blank)	(Blank)	3b	4b	(Blank)	(Blank)	7b	(Blank)	(Blank)	(Blank)	11b	12b	

How to order

Cable with D-sub-connector model No.

4GR - CABLE - D 0 0 - 1

Ⓐ User interface

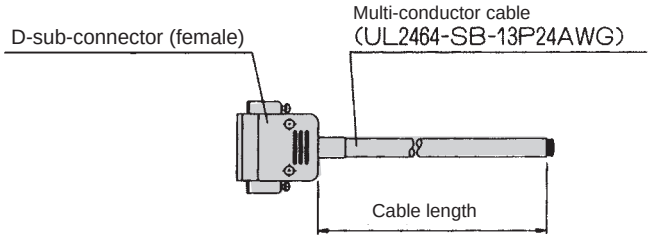
Ⓑ Cable length

* Each pneumatic valve model can be used for D-sub-connector T30/T31.

Code	Description	Model No. 4GR
Ⓐ User interface		
0	Cut only	●
1	With round terminal for M3.5 screw	●
Ⓑ Cable length		
1	1 m	●
3	3 m	●
5	5 m	●

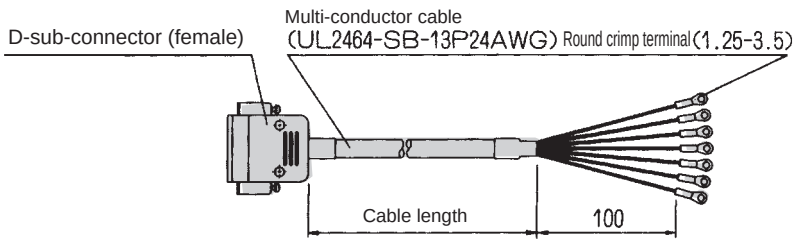
D-sub-connector terminal No. and conductor

● 4GR-CABLE-D00-Ⓑ



D-sub-connector terminal No.		1	2	3	4	5	6	7	8	9	10	11	12	13
Core identification	Insulator 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	
Core identification	Insulator 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	

● 4GR-CABLE-D01-Ⓑ



D-sub-connector terminal No.		1	2	3	4	5	6	7	8	9	10	11	12	13
Core identification	Insulator 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	11	12	13
D-sub-connector terminal No.		14	15	16	17	18	19	20	21	22	23	24	25	
Core identification	Insulator 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	24	25	

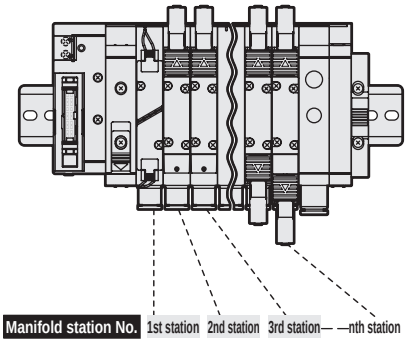
* Up to 24 points can be used. Cut the wires for surplus points before use.

Flat cable connector (Wiring method T50)

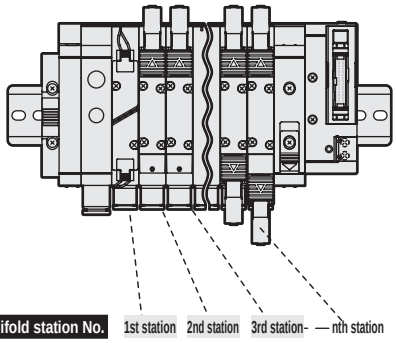
T50 Connectors

The connector used for T50 wiring method complies with MIL Standards (MIL-C-83503). Wiring work is simplified with the pressure welded flat cable.
Pin numbers are assigned differently based on the PLC manufacturer, but the function assignment is the same.
Arrange using connectors and the triangular mark (▼) in the table below for reference. The ▼ mark is the reference for both plug and socket. The manifold station numbers are set in order from left with b side solenoid side (cap side for single) facing forward.

T50 (left side specifications)

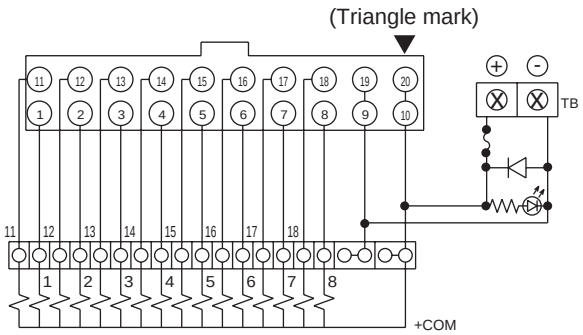


T50R (right side specifications)



Precautions for connector (T50)

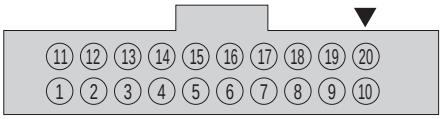
(1) Signal arrays of the PLC output unit must match signal arrays on the valve side. Direct connections with the PLC are limited. Use the dedicated cable for each PLC manufacturer.
(2) The working power is 12/24 VDC dedicated.
(3) When connecting the T50 to a general output unit, use the + terminal (20, 10) of the 20P connector as the plus side common, and use the NPN transistor output open collector for the drive circuit.
(4) Never connect this manifold to the input unit, as major failures could occur in this device and in the peripherals. Be sure to connect the manifold to the output unit.
(5) A voltage drop may occur due to simultaneous energizing or cable length. Confirm that the voltage drop for the solenoid is within 10% of the rated voltage.



T50 connector pin array (example)

*1: The numbers on valves No.1a, 1b, 2a, 2b ... indicate the 1st and 2nd stations, and alphabets “a” and “b” indicate the “a” side and “b” side solenoids, respectively.
The manifold’s max. station number differs depending on the model. Check the specifications of each model.

Connector pin No.



[Standard wiring]

● For single solenoid valve only

Pin No.	11	12	13	14	15	16	17	18	19	20
Valve No.	9a	10a	11a	12a	13a	14a	15a	16a	- Power supply	+ Power supply
Pin No.	1	2	3	4	5	6	7	8	9	10
Valve No.	1a	2a	3a	4a	5a	6a	7a	8a	- Power supply	+ Power supply

[Double wiring]

Pin No.	11	12	13	14	15	16	17	18	19	20
Valve No.	5a	(Blank)	6a	(Blank)	7a	(Blank)	8a	(Blank)	- Power supply	+ Power supply
Pin No.	1	2	3	4	5	6	7	8	9	10
Valve No.	1a	(Blank)	2a	(Blank)	3a	(Blank)	4a	(Blank)	- Power supply	+ Power supply

● For double solenoid valve only

Pin No.	11	12	13	14	15	16	17	18	19	20
Valve No.	5a	5b	6a	6b	7a	7b	8a	8b	- Power supply	+ Power supply
Pin No.	1	2	3	4	5	6	7	8	9	10
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b	- Power supply	+ Power supply

Pin No.	11	12	13	14	15	16	17	18	19	20
Valve No.	5a	5b	6a	6b	7a	7b	8a	8b	- Power supply	+ Power supply
Pin No.	1	2	3	4	5	6	7	8	9	10
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b	- Power supply	+ Power supply

● For mixed use (single/double mixture)

Pin No.	11	12	13	14	15	16	17	18	19	20
Valve No.	7a	7b	8a	9a	10a	10b	11a	11b	- Power supply	+ Power supply
Pin No.	1	2	3	4	5	6	7	8	9	10
Valve No.	1a	2a	3a	3b	4a	4b	5a	6a	- Power supply	+ Power supply

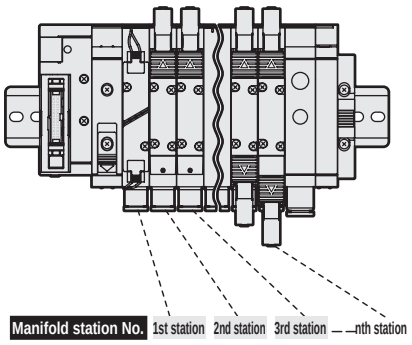
Pin No.	11	12	13	14	15	16	17	18	19	20
Valve No.	5a	(Blank)	6a	(Blank)	7a	7b	8a	(Blank)	- Power supply	+ Power supply
Pin No.	1	2	3	4	5	6	7	8	9	10
Valve No.	1a	(Blank)	2a	(Blank)	3a	3b	4a	4b	- Power supply	+ Power supply

Flat cable connector (Wiring method T51)

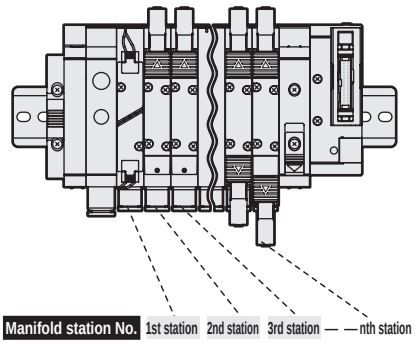
T51 Connectors

The connector used for T51 wiring method complies with MIL Standards (MIL-C-83503). Wiring work is simplified with the pressure welded flat cable.
Pin numbers are assigned differently based on the PLC manufacturer but the function assignment is the same.
Arrange using connectors and the triangular mark (▼) in the table below for reference.
For both plug and socket, the triangular mark (▼) is the reference.
The manifold station numbers are set in order from left with “b side” solenoid (cap for single) facing forward.

T51 (left side specifications)

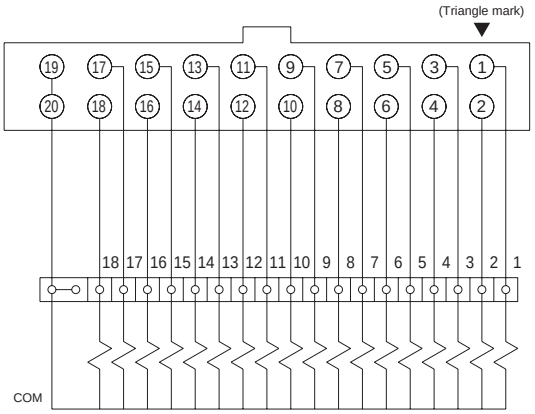


T51R (right side specifications)



Precautions for connector (T51)

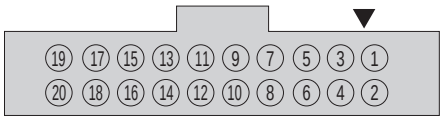
(1) Signal arrays of the PLC output unit must match signal arrays on the valve side.
(2) The working power is 12/24 VDC dedicated.
(3) The T51 is driven with a general output unit.
(4) Never connect this manifold to the input unit, as major failures could occur in this device and in peripherals. Be sure to connect the manifold to the output unit.
(5) A voltage drop may occur due to simultaneous energizing or cable length. Confirm that the voltage drop for the solenoid is within 10% of the rated voltage.



T51 connector pin array (example)

*: The numerals of valve numbers 1a, 1b, 2a, 2b ... indicate the order of stations first station, second station... and the letters “a” and “b” indicate the “a side” solenoid and “b side” solenoid, respectively. The manifold’s max. station number differs depending on the model. Check the specifications of each model.

Connector pin No.



● For 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	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)

● For 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

● For mixed use (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	(Blank)	(Blank)	7b	(Blank)	(Blank)	4b	3b	(Blank)	(Blank)

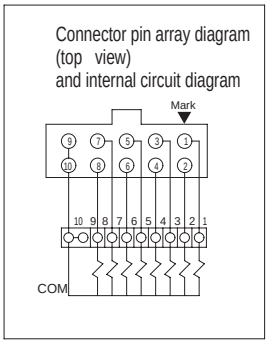
Flat cable connector (Wiring method T52)

T52 Connectors

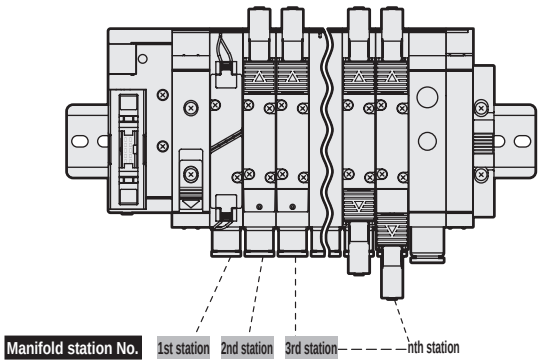
The connector used for T52 wiring method complies with MIL Standards (MIL-C-83503).
Wiring work is simplified with the pressure welded flat cable.
Pin numbers are assigned differently based on the PLC manufacturer, but the function assignment is the same.
Arrange using connectors and the triangular mark (▼) in the table below for reference. The triangular mark (▼) is the reference for both plug and socket.
The manifold station numbers are set in order from left with b side solenoid (cap for single) facing forward.

Precautions for connector (T52)

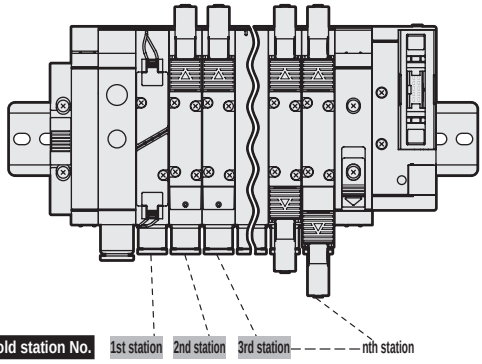
(1) Signal arrays of the PLC output unit must match signal arrays on the valve side.
(2) The working power is 12/24 VDC dedicated.
(3) The T52 is driven with a general output unit.
(4) Never connect this manifold to the input unit, as major failures could occur in this device and in peripherals. Be sure to connect the manifold to the output unit.
(5) A voltage drop may occur due to simultaneous energizing or cable length. Confirm that the voltage drop for the solenoid is within 10% of the rated voltage.



T52 (left side specifications)



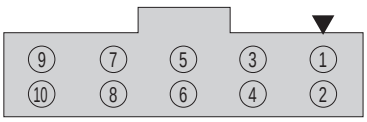
T52R (right side specifications)



T52 connector pin array (example)

*: The numerals of valve numbers 1a, 1b, 2a, 2b ... indicate the order of stations first station, second station... and the letters “a” and “b” indicate the “a side” solenoid and “b side” solenoid, respectively.
The manifold’s max. station number differs depending on the model. Check the specifications of each model.

Connector pin No.



● For single solenoid valve only

[Standard wiring]

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

[Double wiring]

Pin No.	9	7	5	3	1
Valve No.	COM	4a	3a	2a	1a
Pin No.	10	8	6	4	2
Valve No.	COM	(Blank)	(Blank)	(Blank)	(Blank)

● For double solenoid valve only

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

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

● For mixed use (single/double mixture)

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

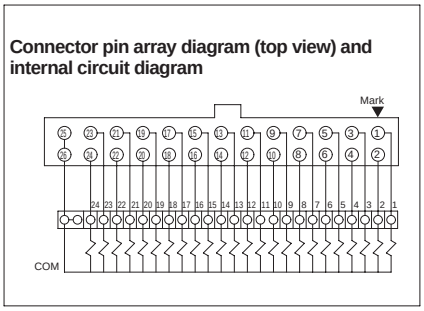
Pin No.	9	7	5	3	1
Valve No.	COM	4a	3a	2a	1a
Pin No.	10	8	6	4	2
Valve No.	COM	4b	(Blank)	(Blank)	(Blank)

Flat cable connector(Wiring method T53)

T53 Connector

The connector used for T53 wiring method complies with MIL Standards (MIL-C-83503). Wiring work is simplified with the pressure welded flat cable.
Pin numbers are assigned differently based on the PLC manufacturer, but the function assignment is the same. Arrange using connectors and the triangular mark (▼) in the table below for reference. The triangular mark (▼) is the reference for both plug and socket.
The manifold station numbers are set in order from left with b side solenoid (cap for single) facing forward.

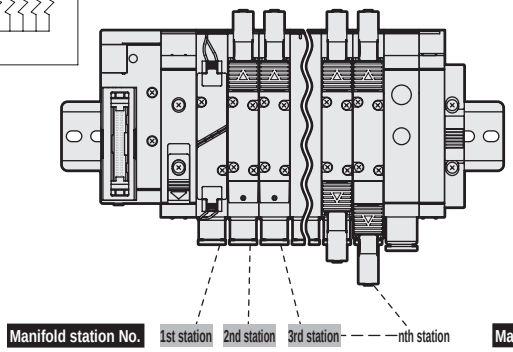
Connector pin array diagram (top view) and internal circuit diagram



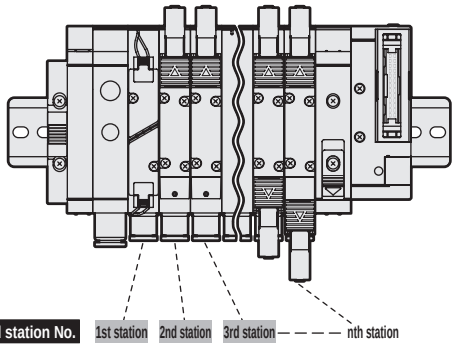
Precautions for connector (T53)

(1)Signal arrays of the PLC output unit must match signal arrays on the valve side.
(2) The working power is 12/24 VDC dedicated.
(3) The T53 type is driven with a general output unit.
(4) Never connect this manifold to the input unit, as major failures could occur in this device and in peripherals. Be sure to connect the manifold to the output unit.
(5)A voltage drop may occur due to simultaneous energizing or cable length. Confirm that the voltage drop for the solenoid is within 10% of the rated voltage.

T53 (left side specifications)



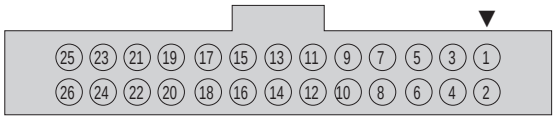
T53R (right side specifications)



T53 connector pin array (example)

*: Valve No.1a, 1b, 2a, 2b...The numbers in indicate the first and second stations. The letters a and b indicate the a side solenoid and the b side solenoid. The manifold's max. station number differs depending on the model. Check the specifications of each model.

Connector pin No.



[Standard wiring]

● For single solenoid valve only

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 only

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 mixed use (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	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)

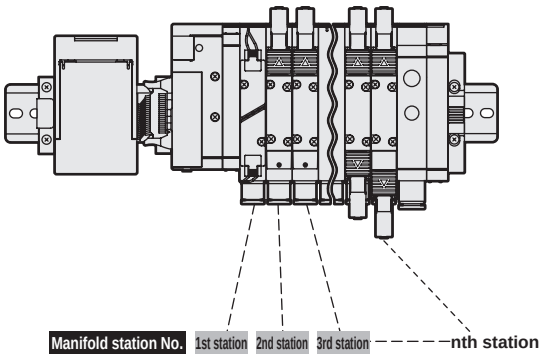
Pin No.	25	23	21	19	17	15	13	11	9	7	5	3	1
Valve No.	COM	12a	11a	10a	9a	8a	7a	6a	5a	4a	3a	2a	1a
Pin No.	26	24	22	20	18	16	14	12	10	8	6	4	2
Valve No.	COM	12b	11b	10b	9b	8b	7b	6b	5b	4b	3b	2b	1b

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	(Blank)	(Blank)	(Blank)	9b	8b	7b	(Blank)	5b	4b	(Blank)	(Blank)	(Blank)

Serial transmission (Wiring method T6G1)

T6G1 serial transmission

- The device unit's output No. differs with the manufacturer. The connector pin No. and the manifold solenoid correspond as shown below.
- Station manifolds are set in order from the left with the piping port facing forward regardless of the wiring block position.
- Internal connectors are wired in order, so there may be some blank numbers depending on the number of stations. These blank outputs cannot be used to drive other than the solenoid manifolds in use.
- The working power is 24 VDC.
- A device unit for each communication system is used. Contact CKD for usable PLC models, host unit model numbers and communication system specifications.
- Output number differs by PLC manufacturer, but the function assignment is the same. Arrange using connectors and the triangular mark (▼) in the table below for reference. The ▼ mark is the reference for both plug and socket.



Correspondence of output No. with connector pin No.

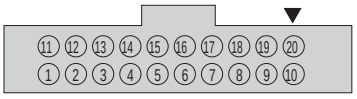
● T6G1

Output No.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Connector pin No.	1	2	3	4	5	6	7	8	11	12	13	14	15	16	17	18

T6G1 connector pin array (example)

*: The numerals of valve numbers 1a, 1b, 2a, 2b ... indicate the order of stations first station, second station... and the letters "a" and "b" indicate the "a side" solenoid and "b side" solenoid, respectively. The manifold's max. station number differs depending on the model. Check the specifications of each model.

Connector pin No.



● For single solenoid valve only

[Standard wiring]

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

[Double wiring]

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

● For double solenoid valve only

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

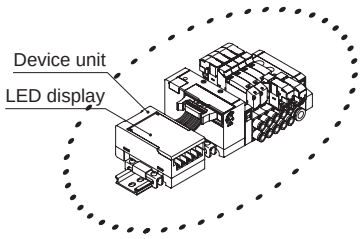
Pin No.	11	12	13	14	15	16	17	18	19	20
Valve No.	5a	5b	6a	6b	7a	7b	8a	8b	(Blank)	+COM
Pin No.	1	2	3	4	5	6	7	8	9	10
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b	(Blank)	+COM

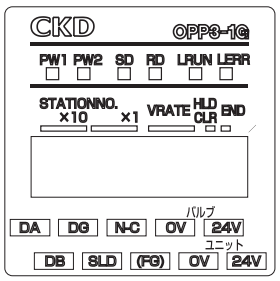
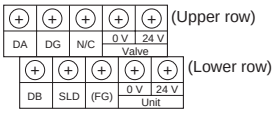
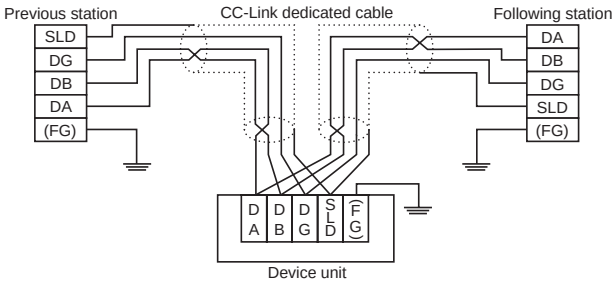
● For mixed use (single/double mixture)

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

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

* Do not use (Blank).



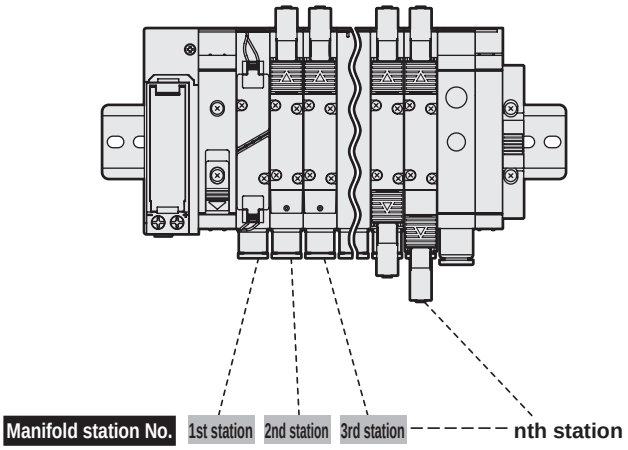
	LED display	Wiring method
T6G1		 

LED name	Display description
PW1	Lights when unit power is ON.
PW2	Lights when valve power is ON.
SD	Lights when transmitting data.
RD	Lights when receiving data.
L RUN	Lights when receiving normal data, and turns OFF at timeover.
L ERR	Lights when transmission error occurs. Turns OFF when time has lapsed. Lights when the station No. setting or transmission speed setting is incorrect. Blinks when station No. or transmission speed in setting changes.

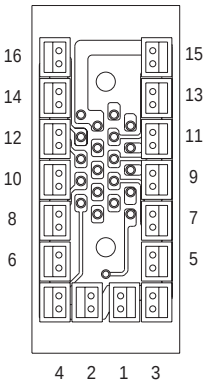
Serial transmission: Wiring method

T7* serial transmission

- The device unit's output No. differs with the manufacturer. The internal connector pin No. and the manifold solenoid correspond as shown below.
- Station manifolds are set in order from the left with the piping port facing forward regardless of the wiring block position.
- Internal connectors are wired in order, so there may be some blank numbers depending on the number of stations. These blank outputs cannot be used to drive other than the solenoid manifolds in use.
- The working power is 24 VDC.
- A device unit for each communication system is used. Contact CKD for usable PLC models, host unit model numbers and communication system specifications.
- Securely fix the enclosed connector with fixing screws. (Proper tightening torque 0.3 N·m)



Internal base connector pin No.



Correspondence of output No. with connector pin No.

● T7D1, T7L1, T7S□1

Output No.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Connector pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

● T7G1

Output No.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Connector pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

T7* connector pin array (example)

*: The numerals of valve numbers 1a, 1b, 2a, 2b ... indicate the order of stations first station, second station... and the letters "a" and "b" indicate the "a side" solenoid and "b side" solenoid, respectively.
The manifold's max. station number differs depending on the model. Check the specifications of each model.

[Standard wiring]

● For single solenoid valve

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	2a	3a	4a	5a	6a	7a	8a	9a	10a	11a	12a	13a	14a	15a	16a

● For double solenoid valve

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b

● For mixed use (single/double mixture)

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	2a	3a	3b	4a	4b	5a	6a	7a	7b	8a	9a	10a	10b	11a	11b

[Double wiring]

● For single solenoid valve

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	(Blank)	2a	(Blank)	3a	(Blank)	4a	(Blank)	5a	(Blank)	6a	(Blank)	7a	(Blank)	8a	(Blank)

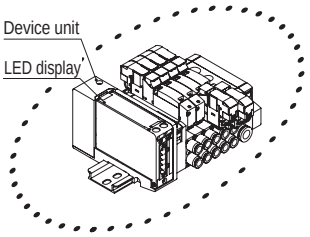
● For double solenoid valve

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b

● For mixed use (single/double mixture)

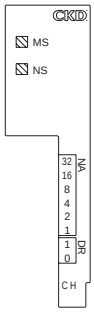
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	(Blank)	2a	(Blank)	3a	3b	4a	4b	5a	(Blank)	6a	(Blank)	7a	7b	8a	(Blank)

* Do not use (Blank).

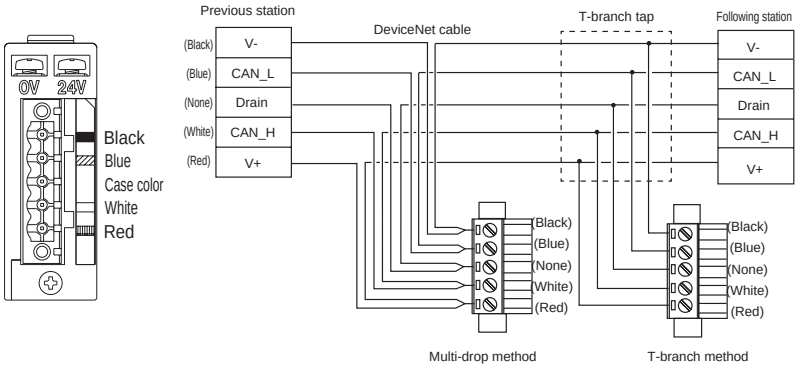


Model No.	LED display	Wiring method

T7D1

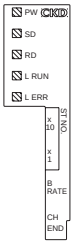


LED name	Display description
MS	Device status is indicated with green and red LEDs. Errors are indicated using combination with "NS LED".
NS	Network status is indicated with green and red LEDs. Errors are indicated using combination with "MS LED".

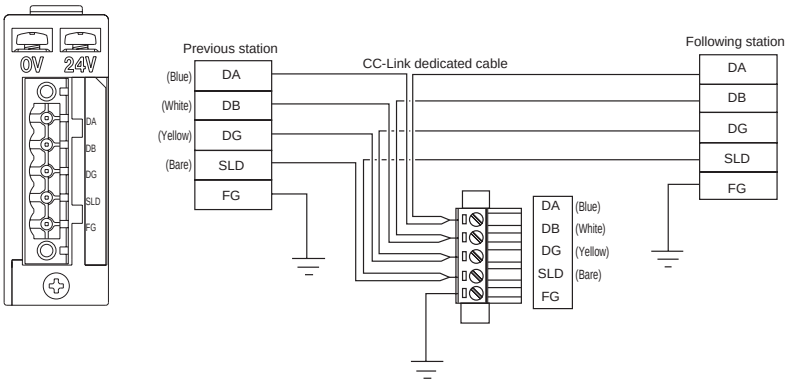


- Connect the power supply line to the terminal box.
- Connect the DeviceNet cable to the connector.
- The power terminal box (24 V, 0 V) is isolated from the communication common power supply terminal (V+, V-).
- Unit power and valve power use a common terminal.
- Wiring section connectors are attached.

T7G1

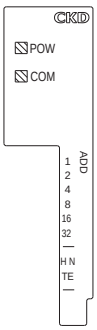


LED name	Display description
PW	Lights when power is ON.
SD	Lights when transmitting data.
RD	Lights when receiving data.
L RUN	Lights when receiving normal data. Turns OFF at time over.
L ERR	Lights when transmission error occurs. Turns OFF at time over. Lights when station No. or transmission speed setting fails.Blinks when station No. or transmission speed setting changes.

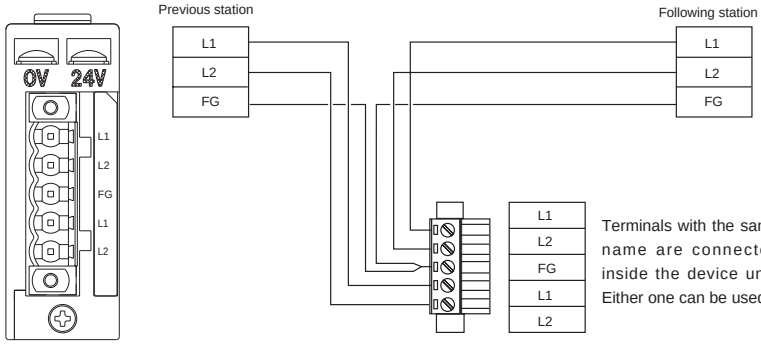


- Connect the power supply line to the terminal box.
- Connect the CC-Link cable to the connector.
- Unit power and valve power use a common terminal.
- Wiring section connectors are attached.

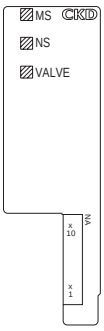
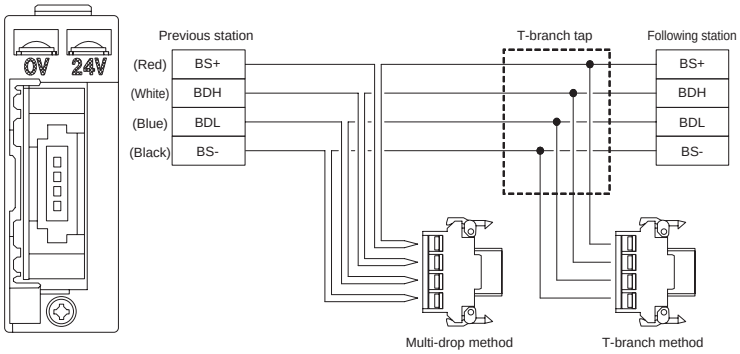
T7L1



LED name	Display description
POW	Lights when power supplies of master and device units are ON.
COM	Lamp is ON during normal communication with master unit. Lamp is OFF when communication failure continues for a certain period.



- Connect the power supply line to the terminal box.
- Connect the communication line to the connector.
- Unit power and valve power use a common terminal.
- Wiring section connectors are attached.

Model No.	LED display	Wiring method
T7S□1		

LED name	Display description
MS	Device status is indicated with green and red LEDs. Errors are indicated in combination with "NS LED".
NS	Network status is indicated with green and red LEDs. Errors are indicated in combination with "MS LED".
VALVE	Green lamp is ON when valve power is ON

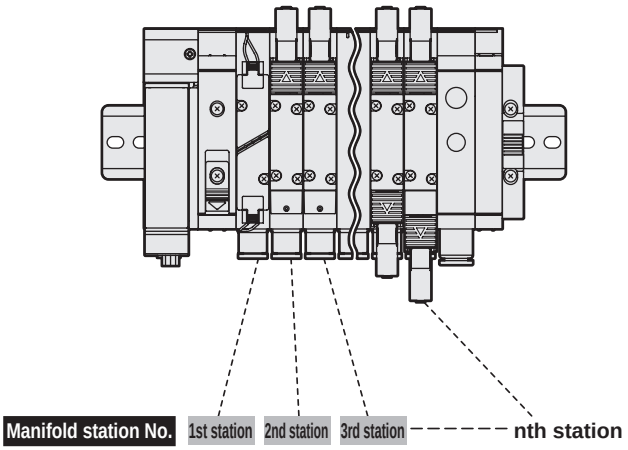
· Communication line/communication power supply are connected to the plug for communication.
· Valve power supply is connected to the terminal box.
· Communication plug is not included with this product.

MEMO

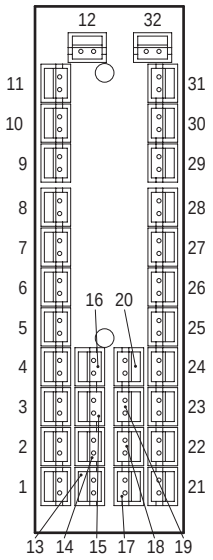
Serial transmission: Wiring method

T8* serial transmission

- The device unit's output No. differs with the manufacturer. The internal connector pin No. and the manifold solenoid correspond as shown below.
- Station manifolds are set in order from the left with the piping port facing forward regardless of the wiring block position.
- Internal connectors are wired in order, so there may be some blank numbers depending on the number of stations. These blank outputs cannot be used to drive other than the solenoid manifolds in use.
- The working power is 24 VDC.
- Securely fix the enclosed connector with fixing screws. (Proper tightening torque 0.3 N·m)



Internal base connector pin No.



Correspondence of output No. with connector pin No.

● T8□1

Output No.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Connector pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

● T8□2

Output No.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Connector pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Output No.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Connector pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

T8* connector pin array (example)

*: The numerals of valve numbers 1a, 1b, 2a, 2b ... indicate the order of stations first station, second station... and the letters "a" and "b" indicate the "a side" solenoid and "b side" solenoid, respectively.
The manifold's max. station number differs depending on the model. Check the specifications of each model.

[Standard wiring]

● For single solenoid valve

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	2a	3a	4a	5a	6a	7a	8a	9a	10a	11a	12a	13a	14a	15a	16a
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Valve No.	17a	18a	19a	20a	21a	22a	23a	24a	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)

[Double wiring]

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	(Blank)	2a	(Blank)	3a	(Blank)	4a	(Blank)	5a	(Blank)	6a	(Blank)	7a	(Blank)	8a	(Blank)
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Valve No.	9a	(Blank)	10a	(Blank)	11a	(Blank)	12a	(Blank)	13a	(Blank)	14a	(Blank)	15a	(Blank)	16a	(Blank)

● For double solenoid valve

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Valve No.	9a	9b	10a	10b	11a	11b	12a	12b	13a	13b	14a	14b	15a	15b	16a	16b

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Valve No.	9a	9b	10a	10b	11a	11b	12a	12b	13a	13b	14a	14b	15a	15b	16a	16b

● For mixed use (single/double mixture)

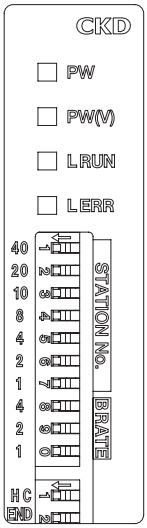
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	2a	3a	3b	4a	4b	5a	6a	7a	7b	8a	9a	10a	10b	11a	11b
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Valve No.	12a	13a	14a	14b	15a	15b	16a	17a	18a	18b	19a	20a	21a	21b	22a	22b

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	(Blank)	2a	(Blank)	3a	3b	4a	4b	5a	(Blank)	6a	(Blank)	7a	7b	8a	(Blank)
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Valve No.	9a	(Blank)	10a	10b	11a	11b	12a	(Blank)	13a	(Blank)	14a	14b	15a	15b	16a	(Blank)

* Do not use (Blank).

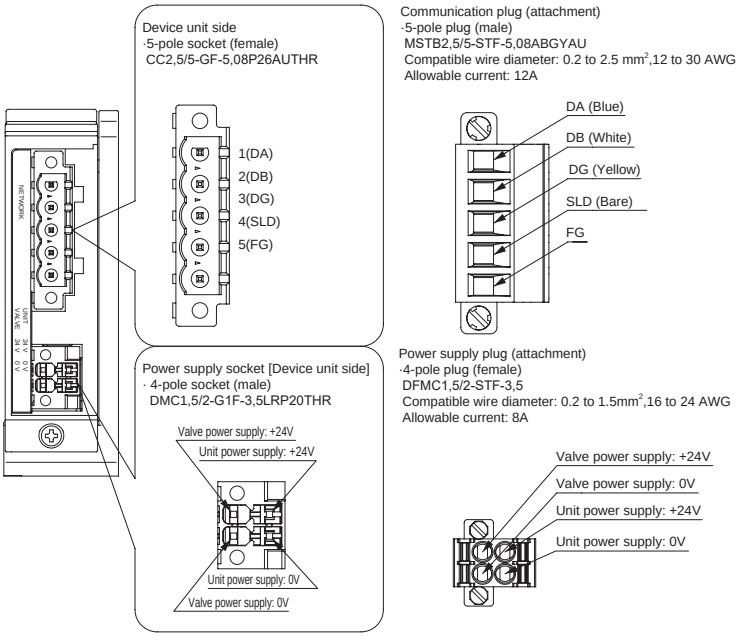
Model No.	LED display	Wiring

T8G*



LED display description

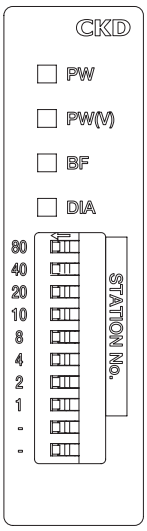
LED name	Display description
PW	Lights when unit power is ON. Red light is ON when normal
PW(V)	Lights when valve power is ON. Red light is ON when normal (Cannot be monitored when the unit power is not ON)
L RUN	ON when CC-Link refresh data is normally received. Red light is ON when normal
L ERR	ON (red) when CC-Link data reception is abnormal. Light is OFF when normal



Communication socket pin array

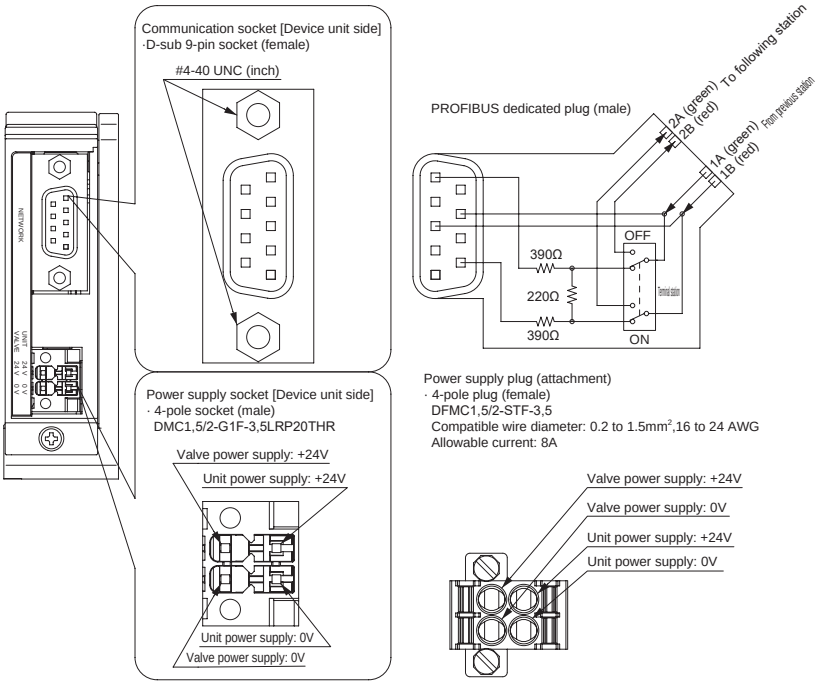
Pin	Signal name (cable color)	Function
1	DA (Blue)	Communication line “DA”
2	DB (White)	Communication line “DB”
3	DG (Yellow)	Communication line “DG”
4	SLD (Bare)	Communication line “SLD”
5	FG	Ground

T8P*



LED display description

LED name	Display description
PW	Lights when unit power is ON. Green lamp is ON when normal
PW(V)	Lights when valve power is ON. Green lamp is ON when normal (Cannot be monitored when the unit power is not ON)
BF	Lights when data cannot be transmitted or received. Red lamp is ON when abnormal
DIA	Lights when self-diagnostics error occurs. Red lamp is ON when abnormal



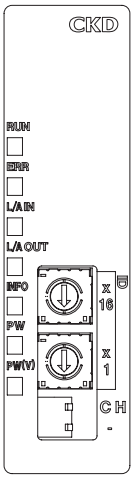
Communication socket pin array

Pin	Signal name	Function
1	Shield	Shield
2	M24	Vacant
3	RxD/TxD-P	Data reception/transmission (plus)
4	CNTR-P	Vacant
5	DGND	GND

Pin	Signal name	Function
6	VP	Service voltage of the terminator (+5V)
7	P24	Vacant
8	RxD/TxD-N	Data reception/transmission (minus)
9	CNTR-N	Vacant

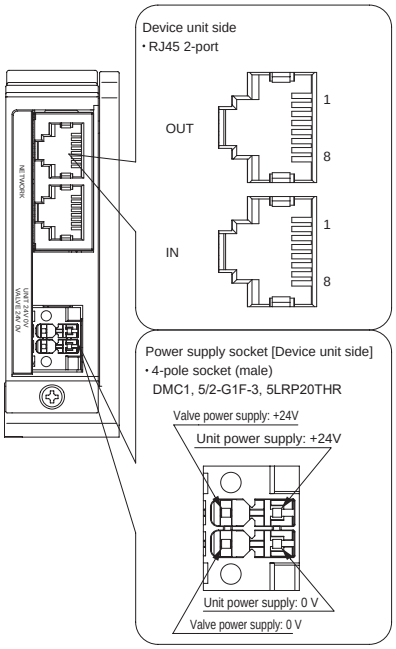
Model No.	LED display	Wiring

T8EC*

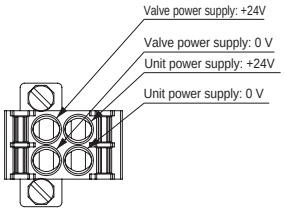


LED display description

LED name	Display description
RUN	Communication status of EtherCAT is indicated by the LED (green) state (OFF/ON/blinking) (green during normal communication)
ERR	Abnormal status of EtherCAT is indicated by the LED (red) state (OFF/ON/blinking) (OFF during normal communication)
L/A IN	Status of the Ethernet port (IN side) is indicated by the LED (green) state (OFF/ON/blinking)
L/A OUT	Status of the Ethernet port (OUT side) is indicated by the LED (green) state (OFF/ON/blinking)
INFO	Error status of the device unit is indicated by the LED (red) (OFF during normal communication)
PW	Lights when unit power is ON. Green lamp is ON when normal
PW(V)	Lights when valve power is ON. Green lamp is ON when normal (Cannot be monitored when the unit power is OFF)



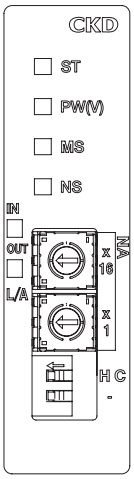
Power supply plug (accessory)
• 4-pole plug (female)
DFMC1,5/2-STF-3,5
Compatible wire diameter: 0.2 to 1.5mm², 16 to 24AWG
Allowable current: 8A



Communication socket pin array

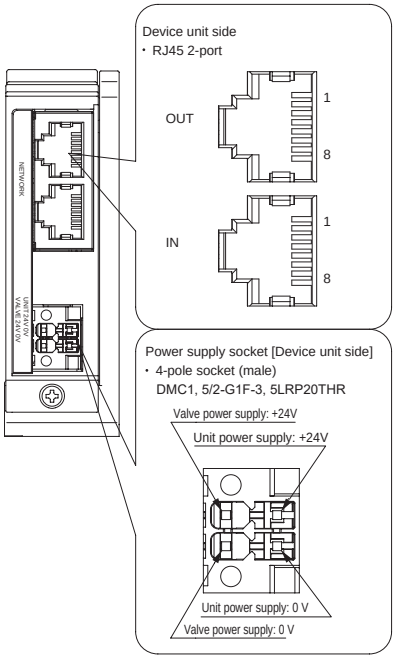
Port	Pin	Signal name	Function
IN/OUT	1	TX+	Transmitted data, positive
	2	TX-	Transmitted data, negative
	3	RX+	Received data, positive
	4	Vacant	
	5	Vacant	
IN/OUT	6	RX-	Received data, negative
	7	Vacant	
	8	Vacant	

T8EN*

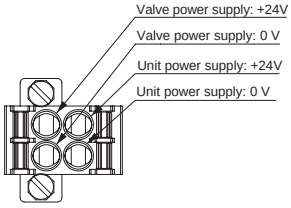


LED display description

LED name	Display description
ST	Status of the device unit is indicated by the LED color (green/yellow) and state (ON/blinking)
PW(V)	Lights when valve power is ON. Green lamp is ON when normal (Cannot be monitored when the unit power is OFF)
MS	Status of the device unit related to EtherNet/IP is indicated by the LED color (green/red) and state (ON/blinking)
NS	Status of the network related to EtherNet/IP is indicated by the LED color (green/red) and state (ON/blinking)
L/A IN	Status of the Ethernet port (IN side) is indicated by the LED color (green/yellow)
L/A OUT	Status of the Ethernet port (OUT side) is indicated by the LED color (green/yellow)



Power supply plug (accessory)
• 4-pole plug (female)
DFMC1, 5/2-STF-3,5
Compatible wire diameter: 0.2 to 1.5mm², 16 to 24AWG
Allowable current: 8A

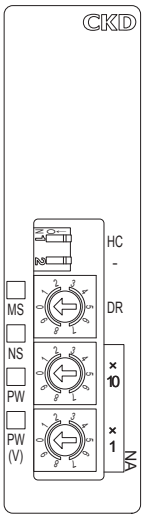


Communication socket pin array

Port	Pin	Signal name	Function
IN/OUT	1	TX+	Transmitted data, positive
	2	TX-	Transmitted data, negative
	3	RX+	Received data, positive
	4	Vacant	
	5	Vacant	
IN/OUT	6	RX-	Received data, negative
	7	Vacant	
	8	Vacant	

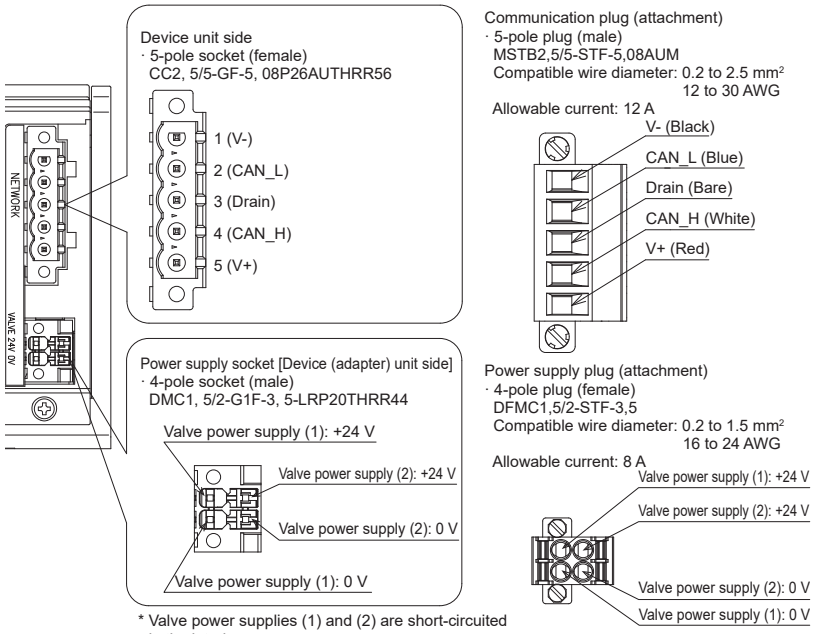
Model No.	LED display	Wiring

T8D*



LED display description

LED name	Display description
MS	Status of the device unit related to DeviceNet is indicated by the LED color (green/red) and state (ON/blinking)
NS	Status of the network related to DeviceNet is indicated by the LED color (green/red) and state (ON/blinking)
PW	Lights when communication power is ON. Green lamp is ON when normal
PW(V)	Lights when valve power is ON. Green lamp is ON when normal (Cannot be monitored when communication power is OFF)

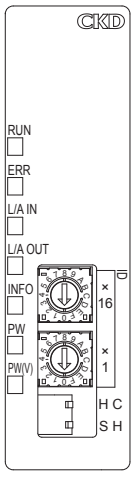


* Valve power supplies (1) and (2) are short-circuited in the interior.

Communication connector pin array

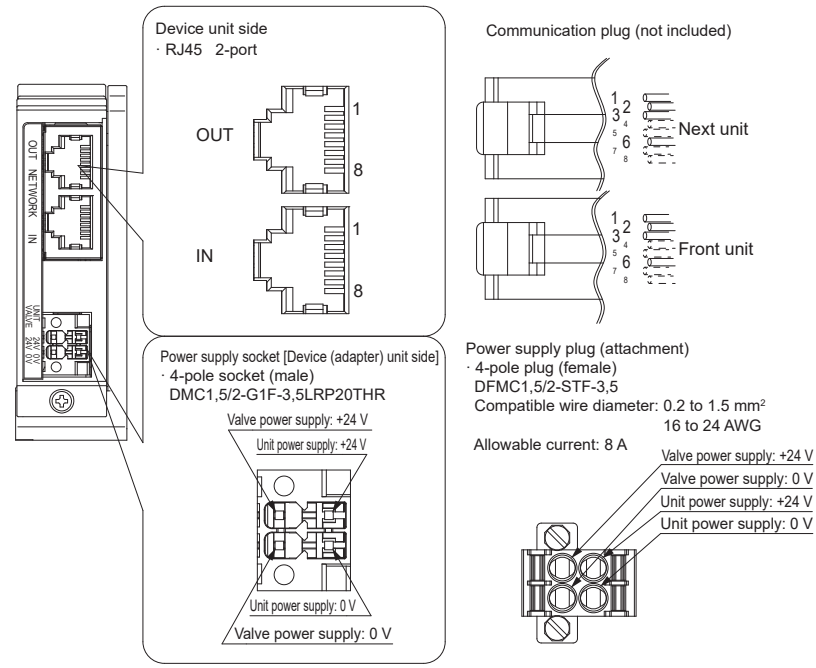
Pin	Signal name	Function
1	V-	Communication power supply (-)
2	CAN_L	Communication terminal (L)
3	Drain	Shield terminal
4	CAN_H	Communication terminal (H)
5	V+	Communication power supply (+)

T8EB*



LED display description

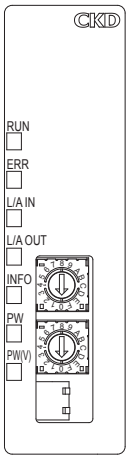
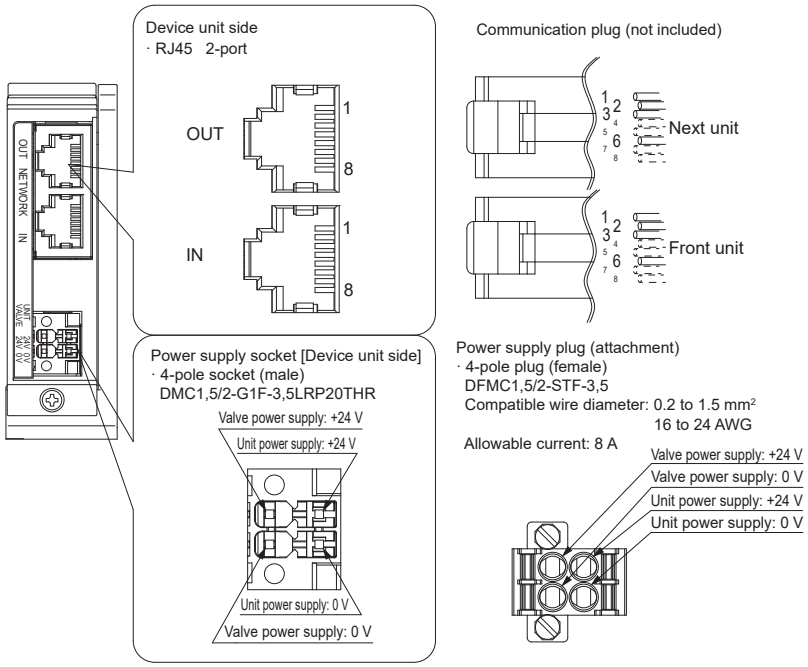
LED name	Display description
RUN	Connection status of CC-Link IEF Basic is indicated by the LED state (ON/blinking)
ERR	Abnormal connection status of CC-Link IEF Basic is indicated by the LED state (ON/blinking)
L/A IN	Status of the Ethernet port (IN side) is indicated by the LED state (ON/blinking)
L/A OUT	Status of the Ethernet port (OUT side) is indicated by the LED state (ON/blinking)
INFO	Status of the device unit is indicated by the LED state (ON/blinking)
PW	Indicates the power status of the unit power supply. Lit in green when powered ON
PW(V)	Indicates the power status of the valve power supply. Green lamp ON when power ON (Cannot be monitored when the unit power is OFF)



Communication plug pin array

Port	Pin	Signal name	Function
IN/OUT	1	TX+	Transmitted data, positive
	2	TX-	Transmitted data, negative
	3	RX+	Received data, positive
	4	Vacant	Vacant

Port	Pin	Signal name	Function
IN/OUT	5	Vacant	Vacant
	6	RX-	Received data, negative
	7	Vacant	Vacant
	8	Vacant	Vacant

Model No.	LED display	Wiring
T8EP*		

LED display description

LED name	Display description
RUN	Connection status of PROFINET is indicated by the LED state (ON/blinking)
ERR	Abnormal connection status of PROFINET is indicated by the LED state (ON/blinking)
L/A IN	Status of the Ethernet port (IN side) is indicated by the LED state (ON/blinking)
L/A OUT	Status of the Ethernet port (OUT side) is indicated by the LED state (ON/blinking)
INFO	Status of the device unit is indicated by the LED state (ON/blinking)
PW	Indicates the power status of the unit power supply. Lit in green when powered ON
PW(V)	Indicates the power status of the valve power supply. Green lamp ON when power ON (Cannot be monitored when the unit power is OFF)

communication plug pin array

Port	Pin	Signal name	Function
IN/OUT	1	TX+	Transmitted data, positive
	2	TX-	Transmitted data, negative
	3	RX+	Received data, positive
	4	Vacant	Vacant

Port	Pin	Signal name	Function
IN/OUT	5	Vacant	Vacant
	6	RX-	Received data, negative
	7	Vacant	Vacant
	8	Vacant	Vacant

Note: Wiring connection connectors
Connectors fitting the device unit side connectors listed below can be used.

Model No.	Device unit side connector model No.	Wiring side connector model No. (attachment/recommended product)
T7D (DeviceNet)	MSTB2.5/5-GF-5.08AU Phoenix Contact Corp.	MSTB2.5/5-STF-5.08AUM Phoenix Contact Corp.
T7G (CC-Link) T7L (SAVE NET)	SL5.08/5/90FAU Weidmüller Corp.	BLZP50.8Hc/05/180F SN OR BX Weidmüller Corp.
T7S (CompoNet)	XW7D-PB4-R OMRON Corporation	Communication plug is not included with this product. [Recommended communication plugs] DCN4-BR4 Flat connector plug (no sheath) OMRON Corporation DCN4-TB4 Open connector (terminal box) OMRON Corporation HCN-TB4LMZG-#B10 Open connector (terminal box): 10 pcs set Honda Tsushin Kogyo Co., Ltd. HCN-A4SMUG-#B10 Connector plug (VCTF/flat): 10 pcs set Honda Tsushin Kogyo Co., Ltd. [Recommended connectors for multiple wiring] DCN4-MD4 Connector for multiple wiring OMRON Corporation HCN-MD4SAG-#B10 Connector for multiple wiring: 10 pcs set Honda Tsushin Kogyo Co., Ltd.

Model No.		Device unit side connector model No.	Wiring side connector model No. (attachment/recommended product)
T8G** (CC-Link)	Communication	CC2, 5/5-GF-5, 08P26AUTHR [Phoenix Contact Corp.]	Attachment MSTB 2,5/5-STF-5,08 ABGY AU (1882832) [Phoenix Contact Corp.]
	Power supply	DMC1, 5/2-G1F-3, 5LRP20THR [Phoenix Contact Corp.]	Attachment DFMC1,5/2-STF-3,5 (1790292) [Phoenix Contact Corp.]
T8P** (PROFIBUS-DP)	Communication	D-SUB9 Pin (#4-40UNC: With inch type flange)	Communication plug is not included with this product. Recommended communication plugs SUBCON-PLUS-PROFIBUS/SC2 (2708232) [Phoenix Contact Corp.] SUBCON-PLUS-PROFIBUS/AX/SC (2744380) [Phoenix Contact Corp.]
	Power supply	DMC1, 5/2-G1F-3, 5LRP20THR [Phoenix Contact Corp.]	Attachment DFMC1,5/2-STF-3,5 (1790292) [Phoenix Contact Corp.]
T8EC** (EtherCAT)	Communication	RJ45 connector (8 pin x 2-port)	Communication plug is not included with this product. Cable with recommended plug IETP-SB-S***□ (both ends shielded ground) [JMACS] ***: Length □: Unit M = meter C = centimeter
	Power supply	DMC1, 5/2-G1F-3, 5LRP20THR [Phoenix Contact Corp.]	Attachment DFMC1,5/2-STF-3,5 (1790292) [Phoenix Contact Corp.]
T8EN** (EtherNet/IP)	Communication	RJ45 connector (8 pin x 2-port)	Communication plug is not included with this product. Cable with recommended plug IETP-SB-S*** □ (both ends shielded ground) [JMACS] ***: Length □: Unit M = meter C = centimeter
	Power supply	DMC1, 5/2-G1F-3, 5LRP20THR [Phoenix Contact Corp.]	Attachment DFMC1,5/2-STF-3,5 (1790292) [Phoenix Contact Corp.]
T8D** (DeviceNet)	Communication	CC 2,5/ 5-GF-5,08 P26 AUTHRR56 [Phoenix Contact Corp.]	Attachment MSTB2, 5/5-STF-5, 08AUM [Phoenix Contact Corp.]
	Power supply	DMC 1,5/2-G1F-3,5-LRP20THRR44 [Phoenix Contact Corp.]	Attachment DFMC1, 5/2-STF-3, 5 [Phoenix Contact Corp.]
T8EB** (CC-Link IEF Basic)	Communication	RJ45 connector (8 pin x 2-port)	Communication plug is not included with this product. Cable with recommended plug IETP-SB-S*** □ (both ends shielded ground) [JMACS] ***: Length □: Unit M = meter C = centimeter
	Power supply	DMC 1,5/2-G1F-3,5-LRP20THRR44 [Phoenix Contact Corp.]	Attachment DFMC1, 5/2-STF-3, 5 [Phoenix Contact Corp.]
T8EP** (PROFINET)	Communication	RJ45 connector (8 pin x 2-port)	Communication plug is not included with this product. Cable with recommended plug IETP-SB-S*** □ (both ends shielded ground) [JMACS] ***: Length □: Unit M = meter C = centimeter
	Power supply	DMC 1,5/2-G1F-3,5-LRP20THRR44 [Phoenix Contact Corp.]	Attachment DFMC1, 5/2-STF-3, 5 [Phoenix Contact Corp.]

M4G (metal base manifold)

* Refer to page 838 for MN4G (block manifold).

Pattern 1 Expansion to position equipped with spare wiring

The masking plate at the planned expansion position is equipped with spare wiring in advance. For the valve expansion method with spare wiring, follow the steps below.

❶ Remove the spare socket from the masking plate.

❷ Remove the masking plate from the base.

❸ Mount the valve for expansion and attach the socket.

Pattern 2 Expansion to position without spare wiring

When changing the single to the double, additional internal wiring to the b side solenoid for expansion is required. For the valve expansion method without spare wiring, follow the steps below.

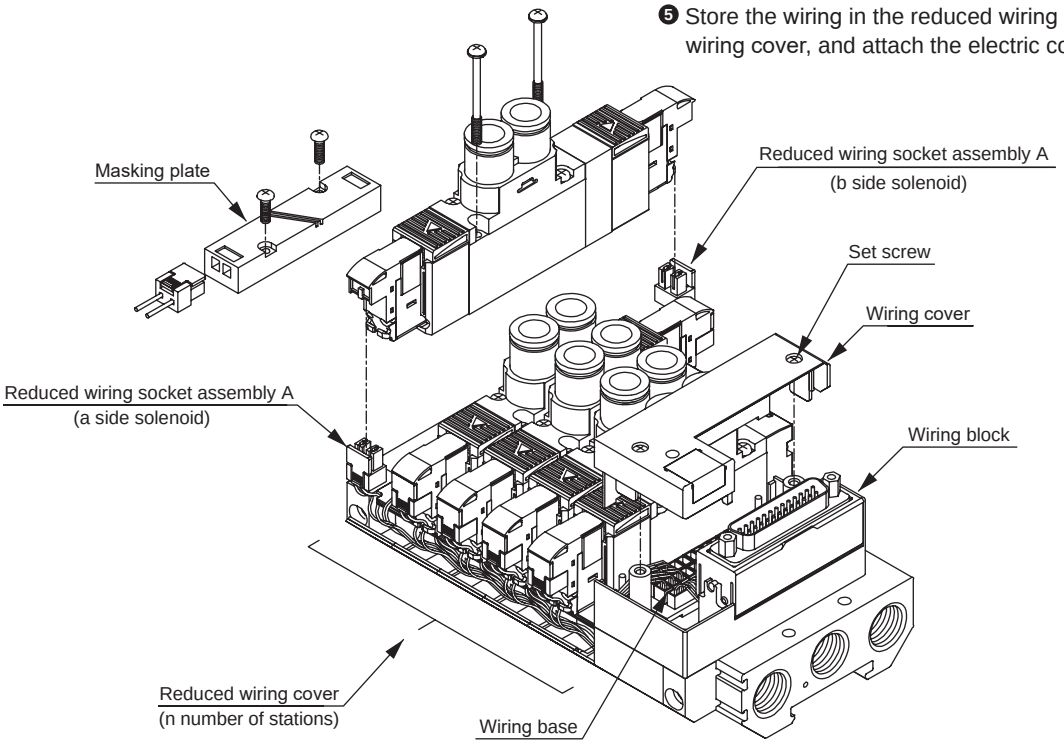
❶ Remove the wiring cover and open the reduced wiring cover.

❷ Exchange the valve at the change position. Exchange the socket for the a side solenoid.

❸ Attach the socket for the b side solenoid (sold separately). Pass the wiring through the valve and pull it out to the a side.

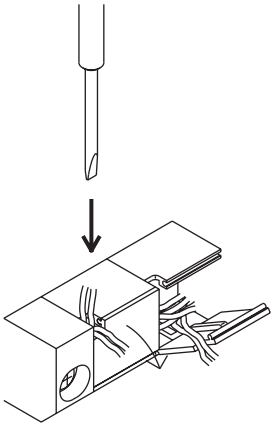
❹ Route the wire inside the wiring block and insert the connector to the wiring base.

❺ Store the wiring in the reduced wiring cover, close the reduced wiring cover, and attach the electric cover.



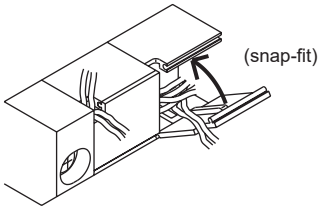
How to open and close the reduced wiring cover

How to open the reduced wiring cover



Catch the cable through hole of the reduced wiring cover with a precision screwdriver, etc., and open the cover. Do not use a pointed tool, so as not to damage the cable while catching the hole.

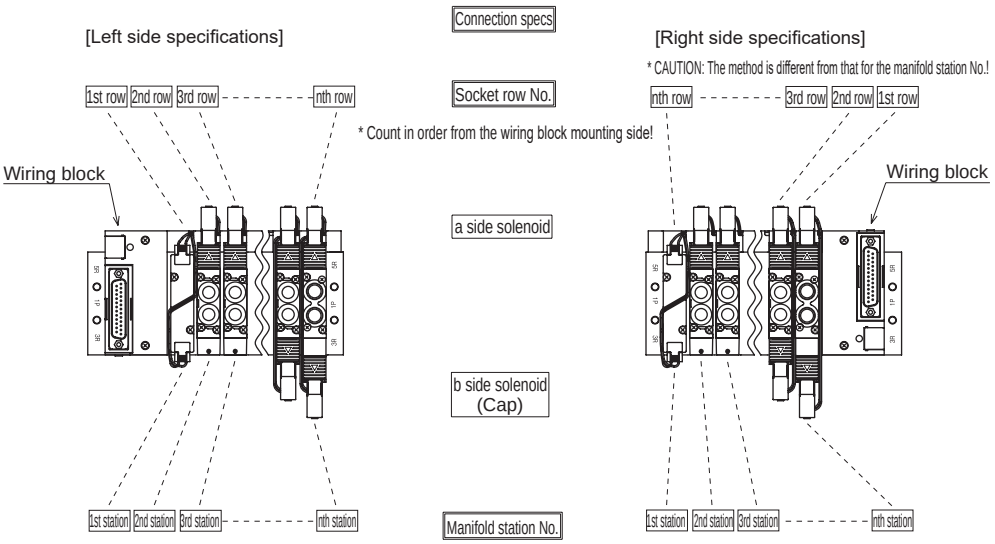
How to close the reduced wiring cover



Pass the cable through the cable-through hole of the reduced wiring cover and close the cover. Avoid snagging the cable, and close the cover until it clicks into place.

Selection of model No. of socket assembly for expansion

For the socket assembly for expansion, specify a cable with appropriate length corresponding to the expansion position. Incorrect selection could cause disconnection or cable interference.
For the A type socket assembly model No., the expansion positions are set in order from the wiring block mounting side. Note that this is different from the setting method for the manifold valve station numbers, which are set in order from the left with the b side solenoid facing forward.



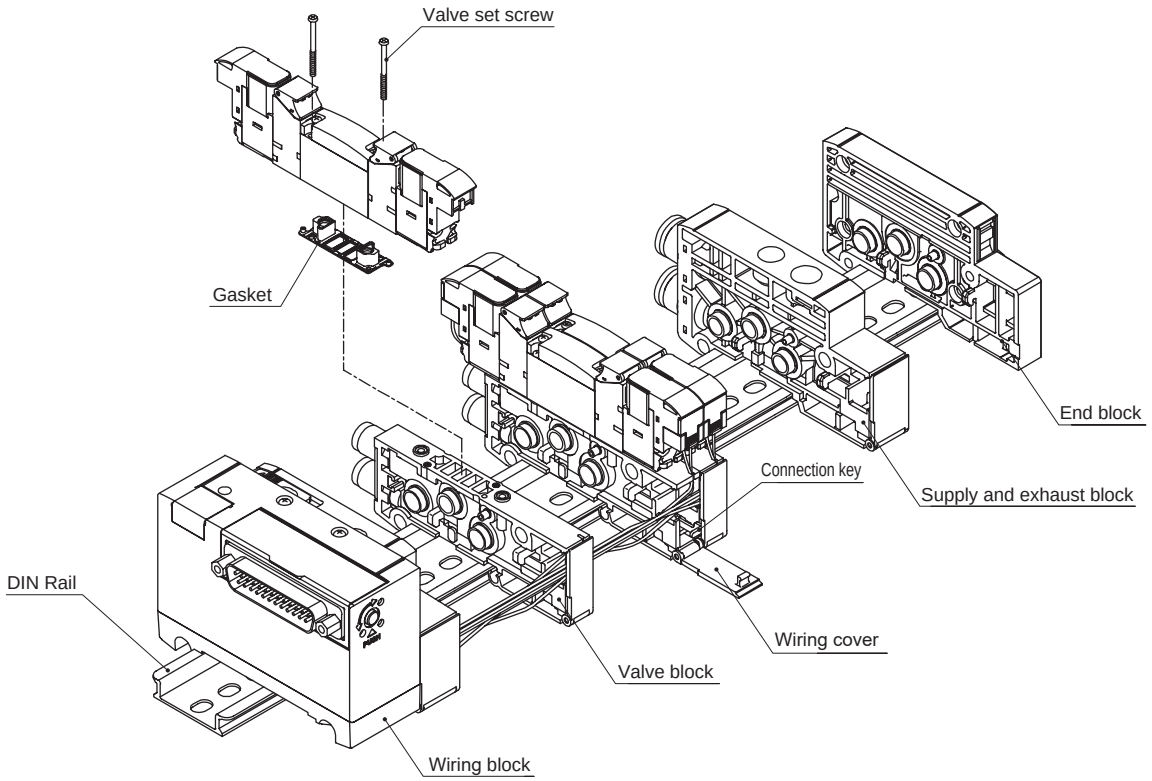
Note
1. T50/T51 is also the same

Model No. of socket assembly for expansion
A-connector socket assembly

4G [*1] R-SOCKET-ASSY-A [*2] [*3] - [*4]

*1 Series		*2: Connection specs		*3: Solenoid position		*4: No. of socket rows	
1	4G1	Blank	Left	A	a side	1	1st row
2	4G2	R	Right	B	b side	to	to
3	4G3					24	24th row

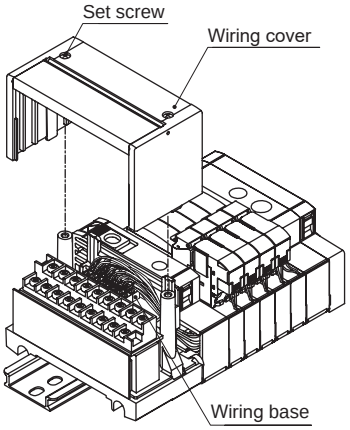
MN4G (exploded view of block manifold)



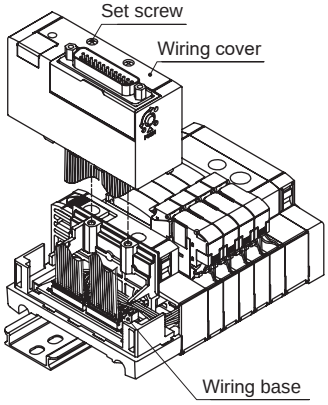
Example of disassembling: MN4GB1 For D sub-connector right side wiring specifications

Removing the wiring cover

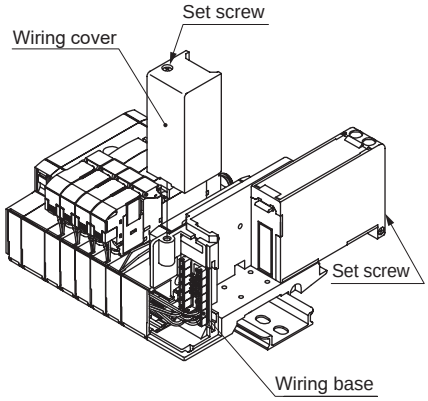
T10R/T11R



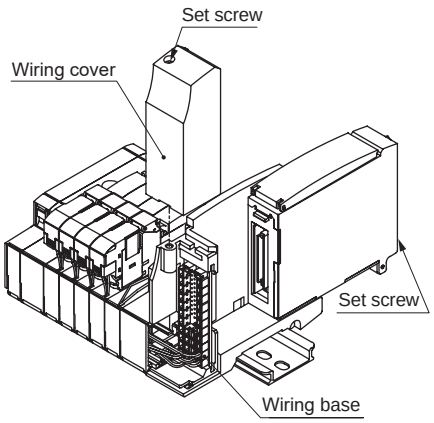
T30R/T5*R



T7*



T8*



Replacing valves

Removing method
(1) Remove the socket (signal line).
(2) Loosen the mounting screws (2 positions).
(3) Remove the valve from the valve block.

Installation method
Follow the removal procedure in reverse.
Refer to the text at right for the recommended tightening torque for the mounting screw.

Note) The valve block differs between single wiring (V1) and double wiring (V2). Accordingly, when changing from single to double or from double to single, exchange the entire discrete valve block with solenoid valve.

Recommended tightening torque for the valve mounting screw

	Size	Recommended tightening torque (N·m)
4G1	M1.7	0.18 to 0.22
4G2	M2.5	0.35 to 0.40

Increasing the valve blocks

①Loosen the DIN rail fixing screw.
②Open the reduced wiring cover
③Pull the connecting key for the position to be expanded until it clicks, and disengage the connection between blocks.
④Remove the cover of the wiring block to expose the wiring base.
[Removing the wiring cover]
⑤Connect the signal line (socket assembly) [*1] to the wiring base [*2], and assemble the signal line to the valve block. (Fig. 1)
*1 [Refer to Selection of model No. of socket assembly for expansion shown below]
*2 [Refer to Instructions for connection to wiring base on pages 840 to 843]
⑥Mount the valve block to be added to the DIN rail. (Fig. 2)
⑦Press so that there is no gap between blocks, and press the key to engage.
⑧With care not to catch the signal line, close the wiring cover and tighten the cover of the wiring block.
(Tightening torque: 0.35 to 0.50 N·m)
⑨Press the operation button in the direction of the arrow.
Built-in DIN rail fixing bracket slides into the fixed position.
⑩While holding down so that there is no gap between blocks, tighten DIN rail set screws. At this time, ensure that the position of the operation button is the fixed side.
(Recommended tightening torque: 1.2 to 1.6 N·m).
* Up to 2 stations can be expanded before the furthest position from the wiring block.

Fig. 1

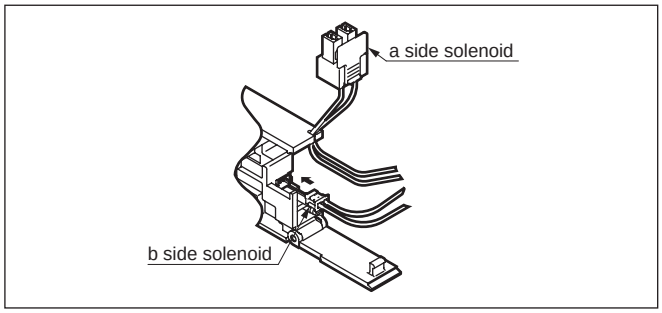
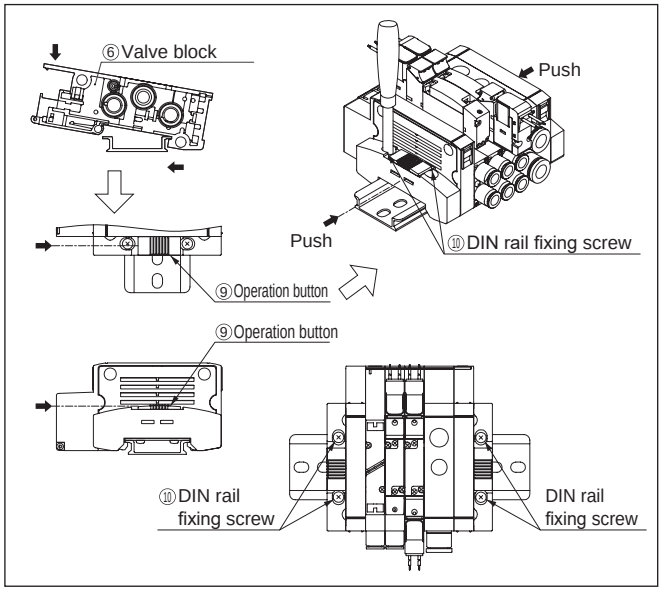


Fig. 2



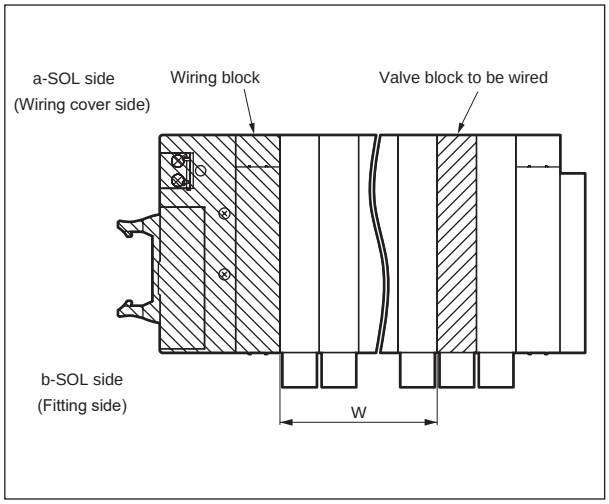
Selection of model No. of socket assembly for expansion

Calculate the distance W between the expansion position and the wiring block (Fig. 3), and select an appropriate cable length from [Table 1].
Note that the required socket assembly differs between the a side solenoid and b side solenoid.
While Fig. 3 shows the wiring block with left side specifications, similarly calculate the distance W between the expansion position and the wiring block for the right side specifications.

Calculation of W
· For MN4G1
W=(10.5xn)+(16xm)+(10.5xl)
· For MN4G2
W=(16xn)+(18xm)+(10.5xl)
n: number of valve blocks m: number of supply and exhaust blocks l: number of partition blocks
· For MN4GX
Calculate W using the mix block width of 16.

[Model No. of socket assembly for expansion]
For a side solenoid
N4GR - SOCKET - ASSY - A - Selection No.
For b side solenoid
N4GR - RELAY - SOCKET - Selection No.

Fig. 3



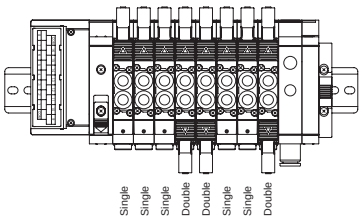
[Table 1] W length - selection No. compatibility table

Selection No.	Type of wiring		
	T10/11(R)	T30/5*/6* (R)	T7*/T8*
2		0	25 or less
3	20 or less	Over 0 to 30	Over 25 to 55
4	Over 20 to 70	Over 30 to 80	Over 55 to 105
5	Over 70 to 120	Over 80 to 130	Over 105 to 155
6	Over 120 to 170	Over 130 to 180	Over 155 to 205
7	Over 170 to 260	Over 180 to 270	Over 205 to 295
8	Over 260 to 350	Over 270 to 360	Over 295 to 385
9	Over 350 to 450	Over 360 to 460	Over 385 to 485
10	Over 450 to 570	Over 460 to 580	Over 485 to 605

Instructions for connecting wiring base (standard wiring)

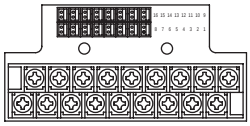
The corresponding rules for connector and valve on the wiring base vary depending on the reduced wiring specifications (T10, T11, T30, T50, T51, T52, T53, T6G1, T7*, T8*). For connector wiring, check the connector No. printed on the base.
For wiring of mix (consolidation), the manifold configuration as shown in the right figure is indicated as an example.

◦ Manifold configuration (Example)

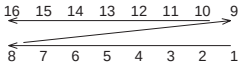


T10

Wiring base assembly



Wire in the order shown by the arrow



Correspondence to valve

1) For single SOL only (MF station No. up to 16 stations)

Term. block No.	16	15	14	13	12	11	10	9
Valve No.	16a	15a	14a	13a	12a	11a	10a	9a
Term. block No.	8	7	6	5	4	3	2	1
Valve No.	8a	7a	6a	5a	4a	3a	2a	1a

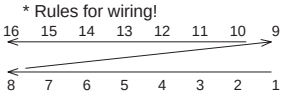
2) For double SOL only (MF station No. up to 8 stations)

Term. block No.	16	15	14	13	12	11	10	9
Valve No.	8b	8a	7b	7a	6b	6a	5b	5a
Term. block No.	8	7	6	5	4	3	2	1
Valve No.	4b	4a	3b	3a	2b	2a	1b	1a

3) For mix (consolidation) (solenoid No. up to 16 positions)

Term. block No.	16	15	14	13	12	11	10	9
Valve No.	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	8b	8a	7a
Term. block No.	8	7	6	5	4	3	2	1
Valve No.	6a	5b	5a	4b	4a	3a	2a	1a

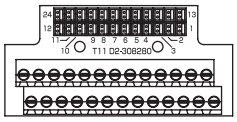
* Rules for wiring!



Insert in the order shown by the arrow. (in order of connector No.)

T11

Wiring base assembly



Wire in the order shown by the arrow

Correspondence to valve

1) For single SOL only (MF station No. up to 24 stations)

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

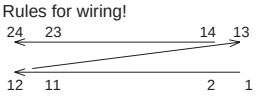
2) For double SOL only (MF station No. up to 12 stations)

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

3) For mix (consolidation) (solenoid No. up to 24 positions)

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

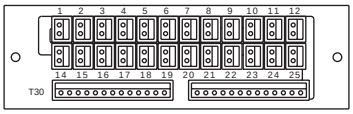
* Rules for wiring!



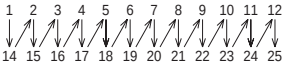
Insert in the order shown by the arrow.

T30

Wiring base assembly



Wire in the order shown by the arrow



Correspondence to valve

1) For single SOL (MF station No. up to 24 stations)

Connector No.	1	2	3	4	5	6	7	8	9	10	11	12
Valve No.	1a	3a	5a	7a	9a	11a	13a	15a	17a	19a	21a	23a
Connector 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

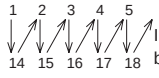
2) For double SOL (MF station No. up to 12 stations)

Connector No.	1	2	3	4	5	6	7	8	9	10	11	12
Valve No.	1a	2a	3a	4a	5a	6a	7a	8a	9a	10a	11a	12a
Connector 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

3) For mix (consolidation) (solenoid No. up to 24 positions)

Connector No.	1	2	3	4	5	6	7	8	9	10	11	12
Valve No.	1a	3a	4b	5b	7a	8b	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)
Connector No.	14	15	16	17	18	19	20	21	22	23	24	25
Valve No.	2a	4a	5a	6a	8a	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)

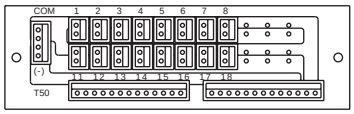
* Rules for wiring!



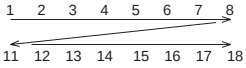
Insert in the order shown by the arrow.

T50/T6G1

Wiring base assembly



Wire in the order shown by the arrow



Correspondence to valve

1) For single SOL (MF station No. up to 16 stations)

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

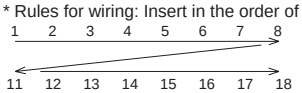
2) For double SOL (MF station No. up to 8 stations)

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

3) For mix (consolidation) (solenoid No. up to 16 positions)

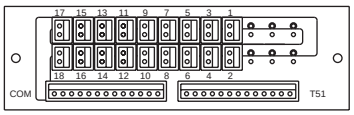
Connector No.	1	2	3	4	5	6	7	8
Valve No.	1a	2a	3a	4a	4b	5a	5b	6a
Connector No.	11	12	13	14	15	16	17	18
Valve No.	7a	8a	8b	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)

* Rules for wiring: Insert in the order of connector No.!



T51

Wiring base assembly



Wire in the order shown by the arrow

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

Correspondence to valve

1) For single SOL (MF station No. up to 18 stations)

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

2) For double SOL (MF station No. up to 9 stations)

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

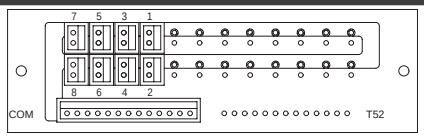
3) For mix (consolidation) (solenoid No. up to 18 positions)

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

* Rules for wiring!
Insert in the order shown by the arrow. (in order of connector No.)

9 7 5 3 1
10 8 6 4 2

T52



7 5 3 1
8 6 4 2

1) For single SOL (MF station No. up to 8 stations)

Connector No.	7	5	3	1
Valve No.	7a	5a	3a	1a
Connector No.	8	6	4	2
Valve No.	8a	6a	4a	2a

2) For double SOL (MF station No. up to 4 stations)

Connector No.	7	5	3	1
Valve No.	4a	3a	2a	1a
Connector No.	8	6	4	2
Valve No.	4b	3b	2b	1b

3) For mix (consolidation) (solenoid No. up to 8 positions)

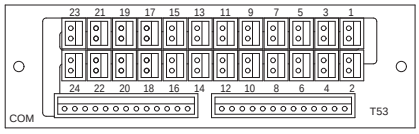
Connector No.	7	5	3	1
Valve No.	5b	4b	3a	1a
Connector No.	8	6	4	2
Valve No.	6a	5a	4a	2a

* Rules for wiring!
Insert in the order shown by the arrow. (in order of connector No.)

7 5 3 1
8 6 4 2

T53

Wiring base assembly



Wire in the order shown by the arrow

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

Correspondence to valve

1) For single SOL (MF station No. up to 24 stations for MN4G1 and up to 20 stations for MN4G2))

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

2) For double SOL (MF station No. up to 12 stations)

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

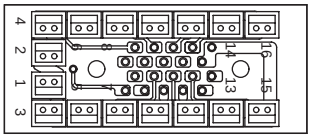
3) For mix (consolidation) (solenoid No. up to 24 positions)

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

* Rules for wiring!
Insert in the order shown by the arrow. (in order of connector No.)

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

T7*



4 6 8 10 12 14 16
3 5 7 9 11 13 15

1) For single SOL only (MF station No. up to 16 stations)

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

2) For double SOL only (MF station No. up to 8 stations)

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

3) For mix (consolidation) (solenoid No. up to 16 positions)

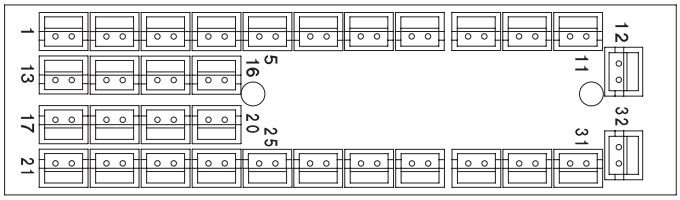
Connector No.	2	4	6	8	10	12	14	16
Valve No.	2a	4a	5a	6a	8a	(Blank)	(Blank)	(Blank)
Connector No.	1	3	5	7	9	11	13	15
Valve No.	1a	3a	4b	5b	7a	8b	(Blank)	(Blank)

* Rules for wiring!
Insert in the order shown by the arrow. (in order of connector No.)

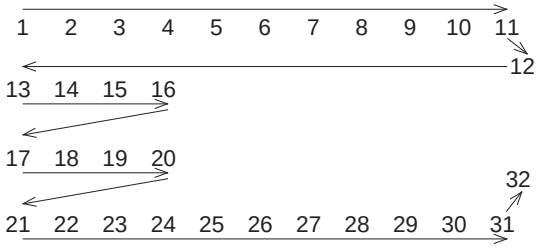
2 4 6 8 10
1 3 5 7 9

T8*

Wiring base assembly



Wire in the order shown by the arrow



Correspondence to valve

1) For single SOL only (MF station No.: up to 24 stations for MN4G1 and up to 20 stations for MN4G2))

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	2a	3a	4a	5a	6a	7a	8a	9a	10a	11a	12a	13a	14a	15a	16a
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Valve No.	17a	18a	19a	20a	21a	22a	23a	24a	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)

2) For double SOL only (MF station No. up to 16 stations)

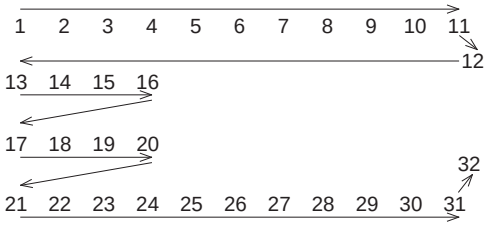
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Valve No.	9a	9b	10a	10b	11a	11b	12a	12b	13a	13b	14a	14b	15a	15b	16a	16b

Wire in the order shown by the arrow

3) For mix (consolidation) (solenoid No. up to 32 positions)

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	2a	3a	4a	4b	5a	5b	6a	7a	8a	8b	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Valve No.	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)	(Blank)

* Rules for wiring!



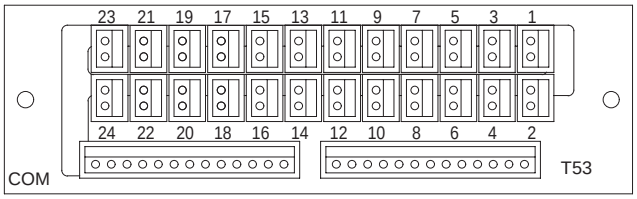
Insert in the order shown by the arrow. (in order of connector No.)

Instructions for connecting wiring base (double wiring)

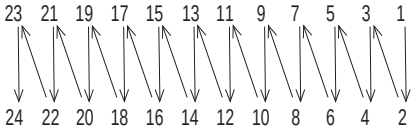
The double wiring specifications correspond to the wiring of the double solenoid, regardless of the switching position classification of the solenoid valve to be mounted. Accordingly, the double SOL only of double wiring and standard wiring have the same wiring. As an example, T53 is shown in the figure below. Refer to this example.

T53 (example)

Wiring base assembly



Wire in the order shown by the arrow



Correspondence to valve

1) For single SOL (MF station No. up to 12 stations)

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

2) For double SOL (MF station No. up to 12 stations)

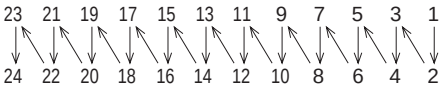
Connector No.	23	21	19	17	15	13	11	9	7	5	3	1
Valve No.	12a	11a	10a	9a	8a	7a	6a	5a	4a	3a	2a	1a
Connector No.	24	22	20	18	16	14	12	10	8	6	4	2
Valve No.	12b	11b	10b	9b	8b	7b	6b	5b	4b	3b	2b	1b

Wire in the order shown by the arrow

3) For mix (consolidation) (solenoid No. up to 24 positions)

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

* Rules for wiring!
Insert in the order shown by the arrow.
(in order of connector No.)



(1) The cylinder average speed is obtained from the combination of 4G series and piping system. It is expressed as the cylinder's piston speed calculated by dividing the stroke length by the time that the piston rod takes from start to end of movement with the cylinder rod installed facing upward. When the load factor is 50%, the average speed should be approximately the cylinder's piston speed multiplied by 0.5.
(2) The cylinder average speed described in "Pneumatic system device selection guide" is that when one cylinder is operated alone.
(3) The effective cross-sectional area of the solenoid valve used for the calculation below is the 2-position value.
(4) This selection guide is for reference. With the CKD sizing program, confirm conditions to be actually used.
(5) Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

Standard system table 4G (metal base)

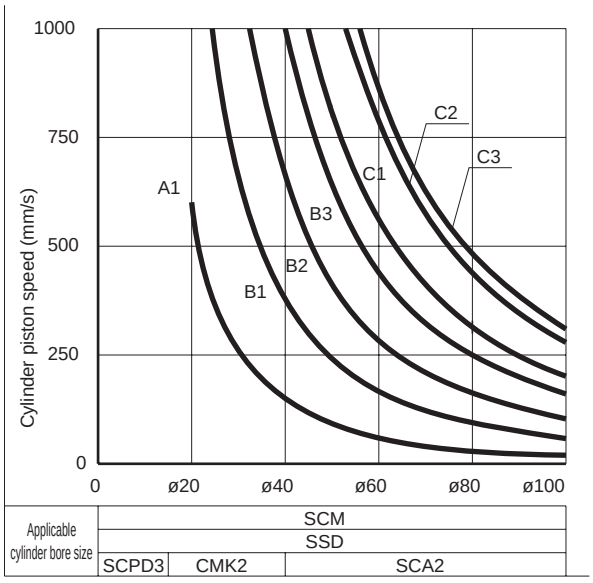
* Refer to page 846 for MN4G (block manifold).

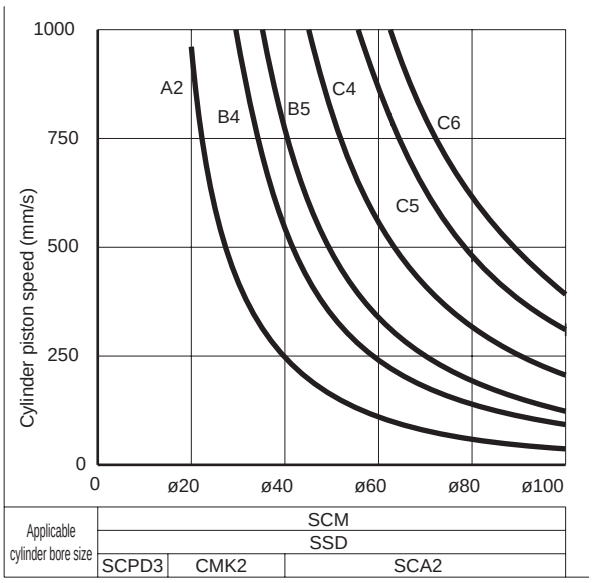
[Single unit]

Series	Body piping					
	Model No.	System No.	Speed controller	Silencer	Piping	Composite effective cross-sectional area (mm^2) pipe length 1 m
4G1	4GA110R-C4	A1	SC3W-M5-4	SLM-M5	ø4xø2.5	1.0
	4GA110R-C6	B1	SC1-6	SLM-M5	ø6xø4	2.5
4G2	4GA210R-C6	B2	SC1-6	SLW-6S	ø6xø4	4.3
	4GA210R-C8	B3	SC1-8	SLW-6S	ø8xø5.7	6.5
4G3	4GA310R-C8	C1	SC1-8	SLW-8S	ø8xø5.7	8.3
	4GA310R-C10	C2	SC1-10	SLW-8S	ø10xø7.2	11.6
	4GA310R-C10	C3	SC1-15	SLW-8S	ø10xø7.2	12.7

Series	Base piping					
	Model No.	System No.	Speed controller	Silencer	Piping	Composite effective cross-sectional area (mm^2) pipe length 1 m
4G1	4GB110R-06	A2	SC3W-6-4	SLW-6S	ø4xø2.5	1.6
	4GB110R-06	B4	SC1-6	SLW-6S	ø6xø4	3.6
4G2	4GB210R-08	B5	SC1-8	SLW-8S	ø6xø4	5.0
	4GB210R-08	C4	SC1-10	SLW-8S	ø8xø5.7	8.3
4G3	4GB310R-10	C5	SC1-10	SLW-10L	ø10xø7.2	12.6
	4GB310R-10	C6	SC1-15	SLW-10L	ø12xø8.9	15.9

* The system No. is indicated in the following graph.

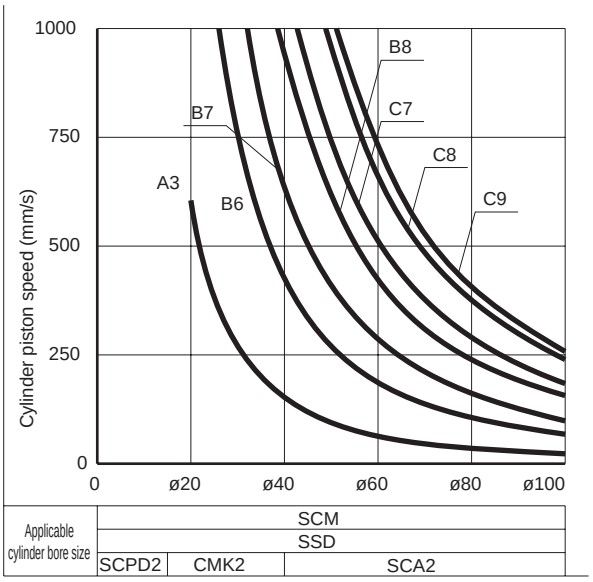


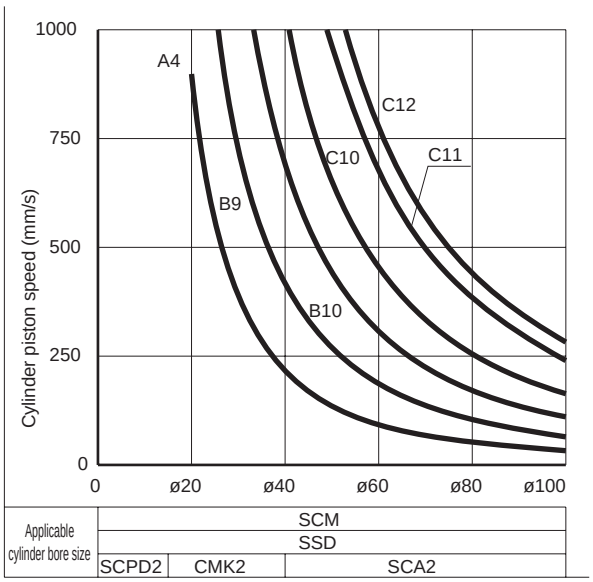


[Manifold] (With internal exhaust check valve)

Series	Body piping					
	Model No.	System No.	Speed controller	Silencer	Piping	Composite effective cross-sectional area (mm2) pipe length 1 m
4G1	M4GA110R-C4	A3	SC3W-M5-4	SLW-6S	ø4xø2.5	1.0
	M4GA110R-C6	B6	SC1-6	SLW-6S	ø6xø4	2.8
4G2	M4GA210R-C6	B7	SC1-6	SLW-8S	ø6xø4	4.2
	M4GA210R-C8	B8	SC1-8	SLW-8S	ø8xø5.7	6.2
4G3	M4GA310R-C8	C7	SC1-8	SLW-10L	ø8xø5.7	7.5
	M4GA310R-C10	C8	SC1-10	SLW-10L	ø10xø7.2	9.8
	M4GA310R-C10	C9	SC1-15	SLW-10L	ø10xø7.2	10.5
Series	**Base piping**					
	Model No.	**System No.**	**Speed controller**	**Silencer**	**Piping**	**Composite effective cross-sectional area (mm2) pipe length 1 m**
4G1	M4GB110R-C4	A4	SC3W-6-4	SLW-6S	ø4xø2.5	1.5
	M4GB110R-C6	B9	SC1-6	SLW-6S	ø6xø4	2.8
4G2	M4GB210R-C6	B10	SC1-8	SLW-8S	ø6xø4	4.6
	M4GB210R-C8	C10	SC1-10	SLW-8S	ø8xø5.7	6.7
4G3	M4GB310R-C10	C11	SC1-10	SLW-10L	ø10xø7.2	10.0
	M4GB310R-C10	C12	SC1-15	SLW-10L	ø12xø8.9	11.5

* The system No. is indicated in the following graph.





Standard system table **MN4G (block manifold)** (with internal exhaust check valve)

1. Common exhaust

Series	Solenoid valve port size	System No.	Speed controller	Cylinder piping Pipe length 1 m	Common exhaust piping	Composite effective cross-sectional area (mm^2)
MN4G1	C4	A1	SC3W-M5-4	ø4xø2.5	ø6xø4x3m	1.0
	C4	A2	SC3W-6-4	ø4xø2.5	ø6xø4x3m	1.4
	C6	B1	SC1-6	ø6xø4	ø8xø5.7x3m	2.7
MN4G2	C6	B2	SC1-6	ø6xø4	ø8xø5.7x3m	3.8
	C8	B3	SC1-8	ø8xø5.7	ø10xø7.2x3m	5.9

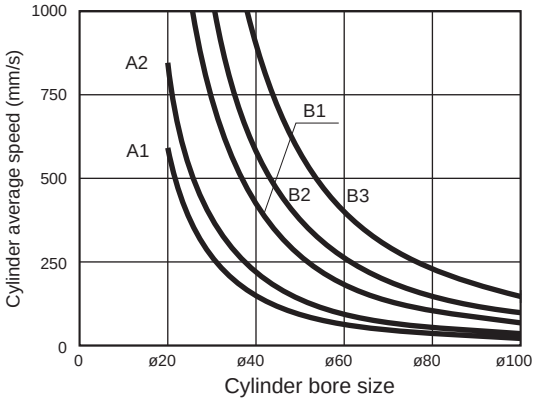
2. Atmospheric release exhaust (integrated exhaust muffler)

Series	Solenoid valve port size	System No.	Speed controller	Cylinder piping pipe length 1 m	End block	Composite effective cross-sectional area (mm^2)
MN4G1	C4	A3	SC3W-M5-4	ø4xø2.5	N4G1-EX	1.0
	C4	A4	SC3W-6-4	ø4xø2.5		1.5
	C6	B4	SC1-6	ø6xø4		2.9
MN4G2	C6	B5	SC1-6	ø6xø4	N4G2-EX	4.2
	C8	B6	SC1-8	ø8xø5.7		5.9

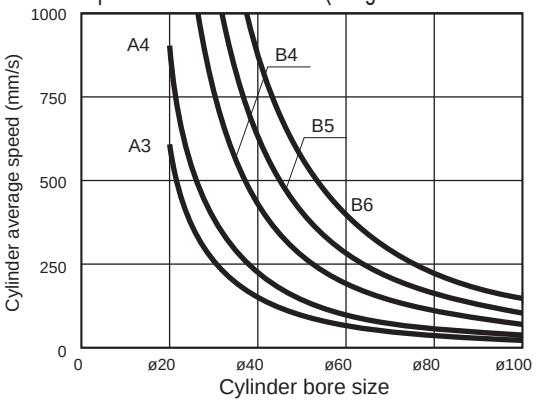
3. Exhaust with silencer

Series	Model No.	System No.	Speed controller	Cylinder piping pipe length 1 m	Silencer	Composite effective cross-sectional area (mm^2)
MN4G1	C4	A5	SC3W-M5-4	ø4xø2.5	SLW-H6	1.0
	C4	A6	SC3W-6-4	ø4xø2.5	SLW-H6	1.5
	C6	B7	SC1-6	ø6xø4	SLW-H8	2.7
MN4G2	C6	B8	SC1-6	ø6xø4	SLW-H8	3.8
	C8	B9	SC1-8	ø8xø5.7	SLW-H10	6.0

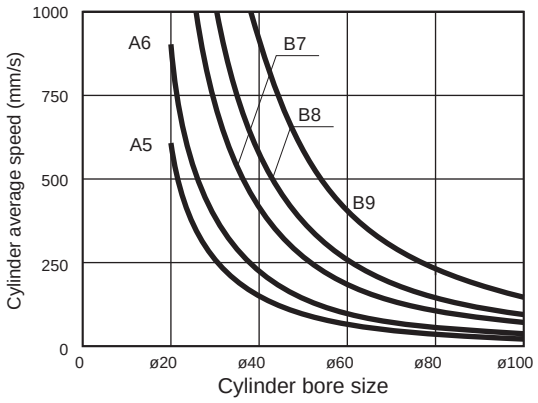
1. Common exhaust



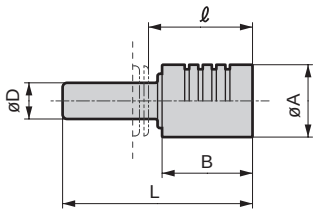
2. Atmospheric release exhaust (integrated exhaust muffler)



3. Exhaust with silencer



● Silencer



Model No.	D	L	A	B	ℓ
SLW-H6	ø6	41	16	20	23.5
SLW-H8	ø8	42	16	20	23
SLW-H10	ø10	53	20	27	31.5

Device selection guide is used to select the optimum model at a glance.

● Fluid control components selection

Whether the cylinder bore size and cylinder being used are driven with relative high or low speed is determined as a condition. Using the table shown below as a reference, select the theoretical reference speed of the cylinder.

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

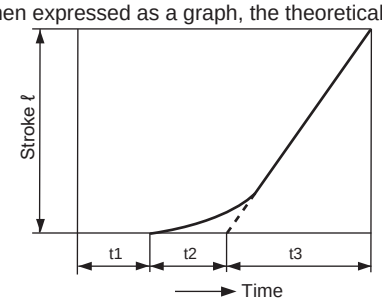
Using the table in the device selection guide 1 (pages 848 and 849), select the equivalent bore size of cylinder tube and the proper standard system No. corresponding to theoretical reference speed.

● Theoretical reference speed: indicates degree of cylinder speed, expressed as the following formula. (This value matches speed with no load. When load is applied, speed drops considerably.)

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

vo: Theoretical reference speed (mm/s)
A : Cylinder sectional area (cm^2)
S : Composite effective cross-sectional area of circuit (exhaust air side) (mm^2)
D : Cylinder bore size (cm)

When expressed as a graph, the theoretical reference speed is the speed within the range where the cylinder moves at a uniform speed



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

t1: Time until movement starts
t2: Time of primary delay
t3: Operating time with constant velocity
ℓ : Stroke length

● Note: t1 and t2 differ depending on load. Can be effectively ignored with no load.

● Required flow rate: indicates instantaneous flow rate for operating a cylinder with velocity vo, expressed with the following formula. Values in the table are when P = 0.5 MPa. The required flow rate is a value necessary to select clean air system components.

$$Q = \frac{Avo\,(P + 0.101) \times 60}{0.101 \times 10^4} \quad \text{(2)}$$

Q: Required flow rate (ℓ/min) (ANR)
P: Supply pressure (MPa)

● Required effective sectional area: indicates composite effective cross sectional area for the exhaust circuit required for moving the cylinder at speed *vo*. (Composite effective sectional area of solenoid valve, speed controller, silencer or piping)
Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

● Proper standard system: indicates the most appropriate combination of solenoid valve, speed controller, silencer and bore size for operating a cylinder with velocity *vo*. The combination in the table is for a pipe length of 1 m.

Depending on the actual unit, they are shown as follows.

Choked flow when $\frac{P_2+0.1}{P_1+0.1} \le b$

$$Q = 600 \times C(P_1+0.1)\sqrt{\frac{293}{273+t}} \quad \text{.....(1)}$$

Subsonic flow when $\frac{P_2+0.1}{P_1+0.1} > b$

$$Q = 600 \times C(P_1+0.1)\sqrt{1-\left(\frac{\frac{P_2+0.1}{P_1+0.1} - b}{1-b}\right)^2}\sqrt{\frac{293}{273+t}} \quad \text{.....(2)}$$

Q : Air flow rate [dm^3/min(ANR)], SI unit dm^3 (cubic decimeter) can also be expressed with ℓ (liter). 1 dm^3 = 1 ℓ
C : Sonic conductance [dm^3/(s/bar)]
b : Critical pressure ratio [-]
P_1: Upstream pressure [MPa]
P_2: Downstream pressure [MPa]
t : Temperature [°C]

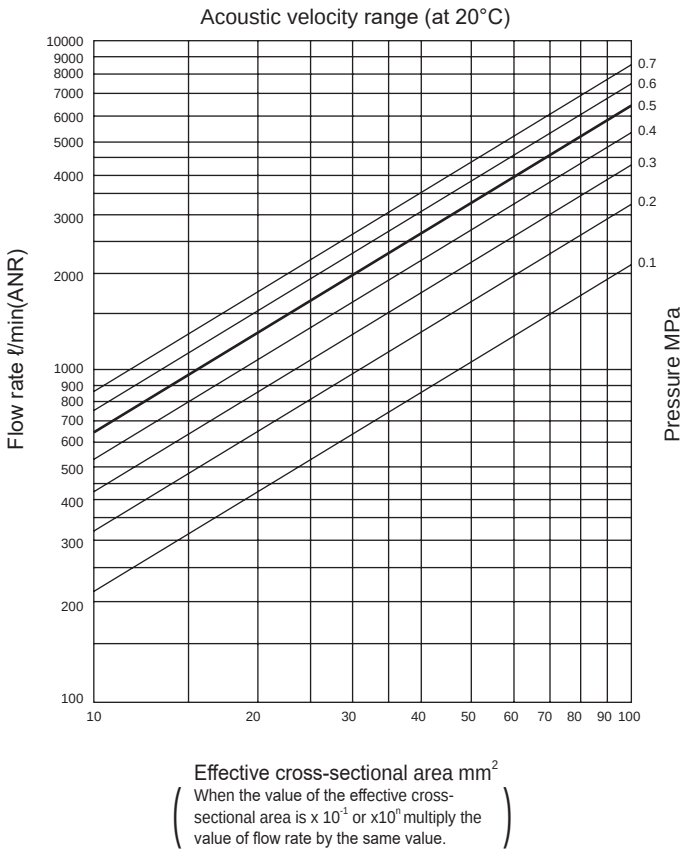
When calculating with effective cross-sectional area S, substitute value C obtained with C = S/5 in the above formula.
For subsonic flow, substitute b = 0.5 in formula (2).

4G Series [Device selection guide 1]

Cylinder bore size (mm)	Theoretical reference speed (mm/s)	Required flow rate (ℓ/min) (ANR)	Required effective sectional area (mm^2)	Proper standard system No.			
				Single unit		Manifold	
				Body piping	Base piping	Body piping	Base piping
ø6	(500)	-	(0.1)	A 1	A 2	A 3	A 4
ø10	(500)	-	(0.2)	A 1	A 2	A 3	A 4
ø16	(500)	-	(0.5)	A 1	A 2	A 3	A 4
ø20	250	29	0.5	A 1	A 2	A 3	A 4
	400	46	1.6	B 1	A 2	B 6	A 4
ø25	250	44	0.8	B 1	A 2	A 3	A 4
	400	70	1.9	B 1	B 4	B 6	B 9
ø30	250	64	1.1	B 1	A 2	B 6	A 4
	400	100	2.8	B 1	B 4	B 6	B 9
ø32	250	73	1.3	B 1	A 2	B 6	A 4
	400	120	3.1	B 1	B 4	B 6	B 9
ø40	250	110	2.0	B 1	B 4	B 6	B 9
	400	180	4.9	B 2	B 4	B 7	B 9
ø40	250	110	1.7	B 1	B 4	B 6	B 9
	500	230	3.3	B 2	B 4	B 7	B10
	750	340	5.0	B 3	B 5	B 8	C10
	1000	450	6.6	C 1	C 4	C 7	C10
ø50	250	180	2.6	B 2	B 4	B 7	B10
	500	350	5.2	B 3	C 4	B 8	C10
	750	530	7.7	C 1	C 5	C 7	C11
	1000	710	10.4	C 2	C 5	C 8	C12
ø63	250	280	4.1	B 3	B 5	B 8	B10
	500	560	8.2	C 2	C 4	C 8	C11
	750	840	12.3	C 3	C 5	C 9	C12
	1000	1,100	16.4	-	C 6	-	-
ø75	250	400	5.8	C 1	C 4	C 7	C10
	500	800	11.6	C 3	C 5	C 9	C11
	750	1,200	17.4	-	-	-	-
	1000	1,600	23.2	-	-	-	-
ø80	250	450	6.6	C 1	C 4	C 7	C10
	500	910	13.2	C 3	C 6	-	C12
	750	1,400	19.8	-	-	-	-
	1000	1,800	25.4	-	-	-	-
ø100	250	710	10.3	C 2	C 5	C 8	C11
	500	1,400	20.6	-	-	-	-
	750	2,100	30.9	-	-	-	-
	1,000	2,800	41.2	-	-	-	-

* Refer to pages 844 and 845 for system No.

[Effective cross-sectional area]



[Clean air system components]

Clean air system components

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

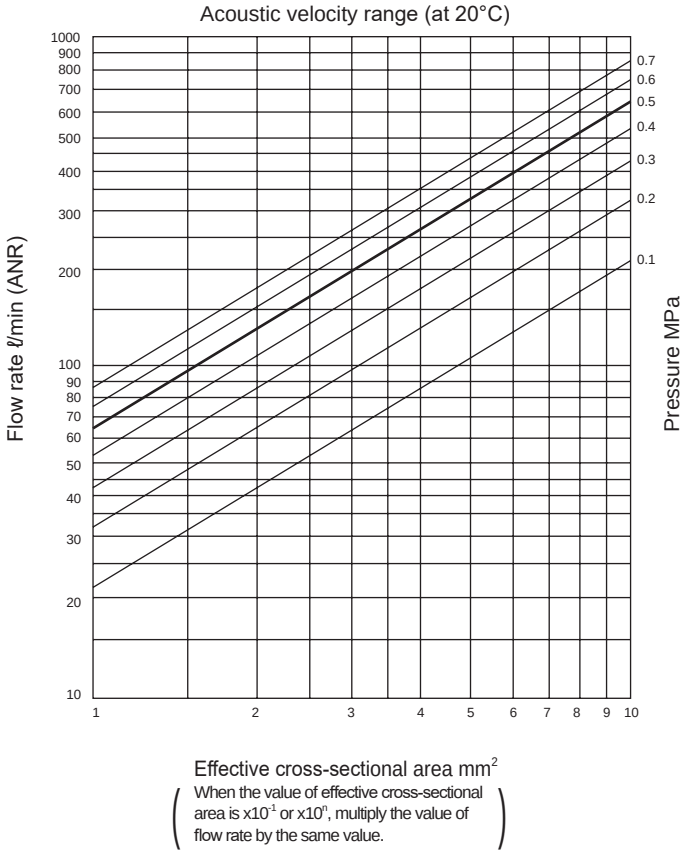
Note) Max. flow rate: For F.R.L., F.R. and R, flow rate at 0.7 MPa primary pressure, 0.5 MPa set pressure, 0.1 MPa pressure drop. For air filter, flow rate at 0.7 MPa primary pressure, 0.02 MPa pressure drop. For lubricator, flow rate at 0.5 MPa primary pressure, flow rate at 0.03 MPa pressure.

MN4G Series [Device selection guide 1]

Cylinder bore size (mm)	Theoretical reference speed (mm/s)	Required flow rate (ℓ/min) (ANR)	Required effective sectional area (mm^2)	Proper standard system No.		
				1. Common exhaust	2. Atmospheric release exhaust	3. Exhaust with silencer
ø6	(500)	-	(0.1)	A 1	A 3	A 5
ø10	(500)	-	(0.2)	A 1	A 3	A 5
ø16	(500)	-	(0.5)	A 1	A 3	A 5
ø20	250	29	0.5	A 1	A 3	A 5
	400	46	1.6	B 1	B 4	B 7
ø25	250	44	0.8	A 2	A 4	A 6
	400	70	1.9	B 1	B 4	B 7
ø30	250	64	1.1	A 2	A 4	A 6
	400	100	2.8	B 1	B 4	B 7
ø32	250	73	1.3	A 2	A 4	A 6
	400	120	3.1	B 2	B 4	B 8
ø40	250	110	2.0	B 1	B 4	B 7
	400	180	4.9	B 3	B 6	B 9
ø40	250	110	1.7	B 1	B 4	B 7
	500	230	3.3	B 2	B 5	B 8
	750	340	5.0	B 3	B 6	B 9
	1000	450	6.6	-	-	-
ø50	250	180	2.6	B 1	B 1	B 7
	500	350	5.2	B 3	B 6	B 9
	750	530	7.7	-	-	-
	1000	710	10.4	-	-	-
ø63	250	280	4.1	B 2	B 5	B 8
	500	560	8.2	-	-	-
	750	840	12.3	-	-	-
	1000	1,100	16.4	-	-	-
ø80	250	450	6.6	-	B 6	-
	500	910	13.2	-	-	-
	750	1,400	19.8	-	-	-
	1000	1,800	25.4	-	-	-

* Refer to page 846 for system No.

[Effective cross-sectional area]



Effective cross-sectional area mm^2

(When the value of effective cross-sectional area is $x10^{-1}$ or $x10^{0}$, multiply the value of flow rate by the same value.)

[Clean air system components]

Clean air system components

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

Note) Max. flow rate: For F.R.L., F.R. and R, flow rate at 0.7 MPa primary pressure, 0.5 MPa set pressure, 0.1 MPa pressure drop. For air filter, flow rate at 0.7 MPa primary pressure, 0.02 MPa pressure drop. For lubricator, flow rate at 0.5 MPa primary pressure, flow rate at 0.03 MPa pressure.