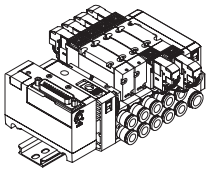
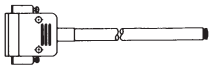
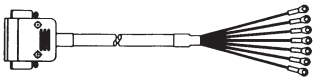
Case example of wiring connection (recommended combination)

● Use with the combination below.

Wiring method	Cable application	Connection cable
D sub-connector (T30/T30R) 	 	Cable with D sub-connector (Refer to page 717 for cable model No. and details.)

*: Set the power supply voltage for valve activation by considering the voltage drop of the PLC and the flat cable.

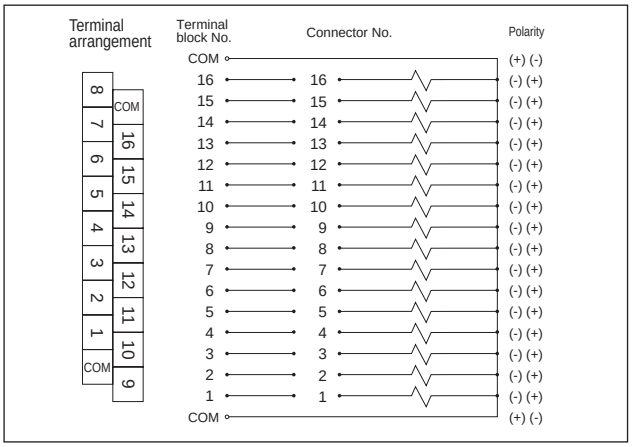
Common terminal block (wiring method T10)

Notes on wiring

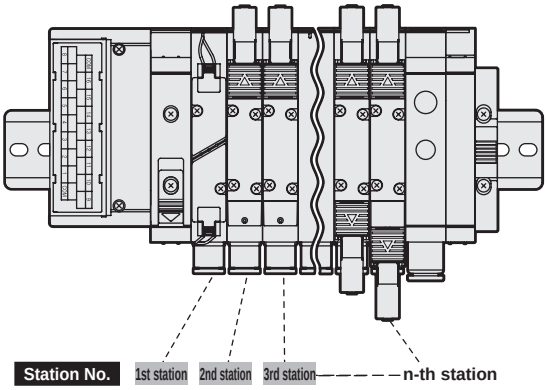
[Precautions for common terminal box (T10)]

(1) With the common terminal block, common wires are treated inside beforehand.
When using the independent contact PLC output unit, lay 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 cannot be applied if the number of solenoid stations exceeds 16.
(4) The manifold station Nos. are set in order from left with the piping port facing forward.
(5) The voltage could drop because of simultaneous energizing or the cable length. Confirm that the voltage drop for the solenoid is within 10% of the rated voltage.

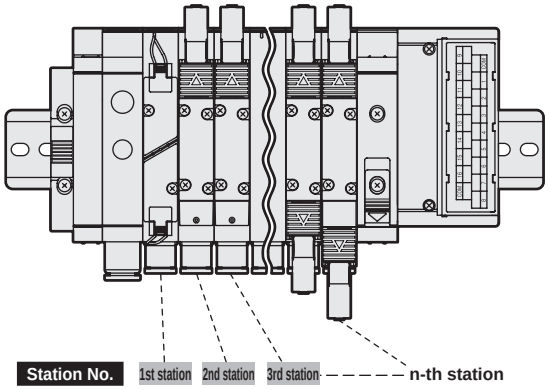
Internal wiring of wiring method T10 (up to 16 solenoid stations)



T10 (left side specifications)



T10R (right side specifications)



Terminal array of wiring method T10 (example)

*: The numbers in the valve No. 1a, 1b, 2a, 2b…and so forth indicate the 1st station and the 2nd station.
The alphabetic characters a and b indicate a side solenoid and b side solenoid.
Max. station No. differs depending on the model.
Check the individual specifications.

Terminal No.

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

[Standard wiring]

● Single solenoid valve

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

● 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

● Mix (single/double solenoid 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

[Double wiring]

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

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

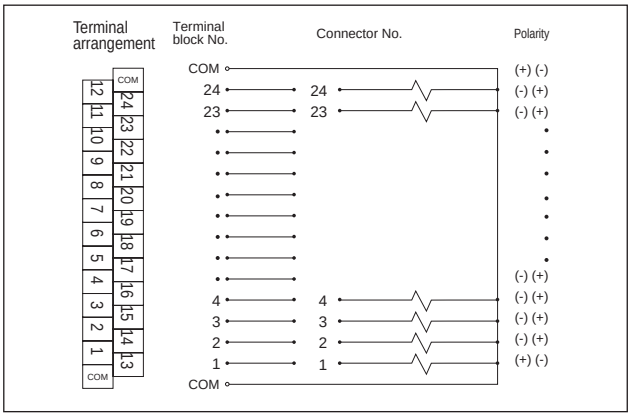
Common terminal block (wiring method T11)

Notes on wiring

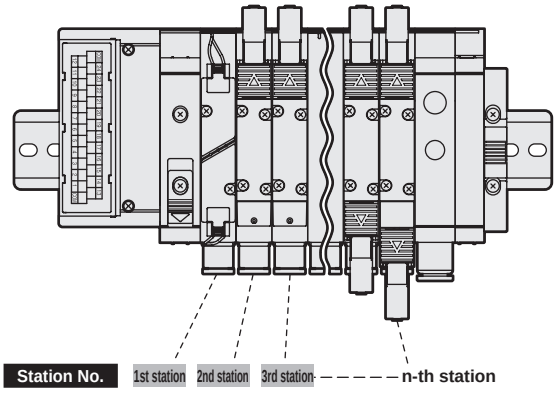
[Caution for common terminal block (T11)]

(1) With the common terminal block, common wires are treated inside beforehand.
When using the independent contact PLC output unit, lay 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 cannot be applied if the number of solenoid stations exceeds 24.
(4) The manifold station Nos. are set in order from left with the piping port facing forward.
(5) The voltage could drop because of simultaneous energizing or the cable length. Confirm that the voltage drop for the solenoid is within 10% of the rated voltage.

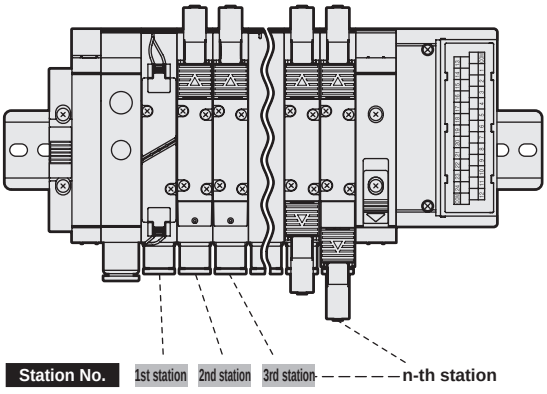
Internal wiring of wiring method T11 (up to 24 solenoid stations)



T11 (left side specifications)



T11R (right side specifications)



Terminal array of wiring method T11 (example)

*: The numbers in the valve No. 1a, 1b, 2a, 2b…and so forth indicate the 1st station and the 2nd station. The alphabetic characters a and b indicate a side solenoid and b side solenoid. Max. station No. differs depending on the model. Check the individual specifications.

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

[Standard wiring]

● Single solenoid valve

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

● 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

● Mix (single/double solenoid 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

[Double wiring]

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

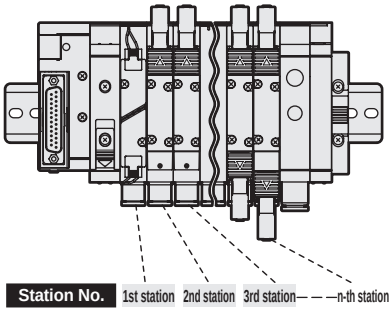
Terminal block No.	24	23	22	21	20	19	18	17	16	15	14	13
Valve No.	12b	12a	11b	11a	(Void)	10a	(Void)	9a	(Void)	8a	7b	7a
Terminal block No.	12	11	10	9	8	7	6	5	4	3	2	1
Valve No.	(Void)	6a	(Void)	5a	4b	4a	3b	3a	(Void)	2a	(Void)	1a

D-sub connector: Wiring method T30

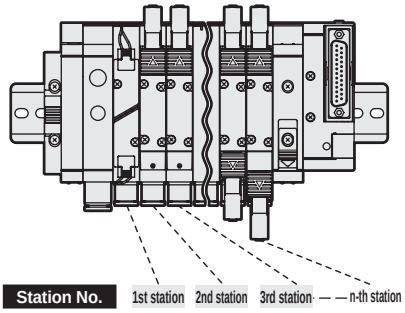
T30 connector

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

T30 (left side specifications)

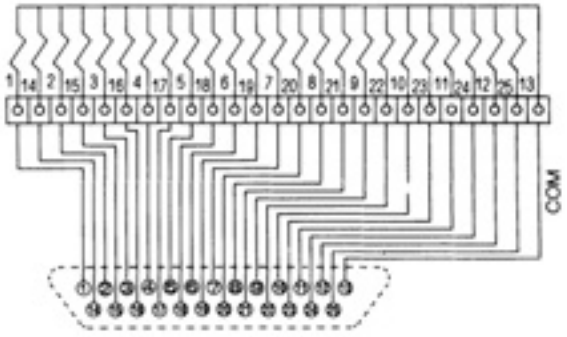


T30R (right side specifications)



Precautions for connector T30

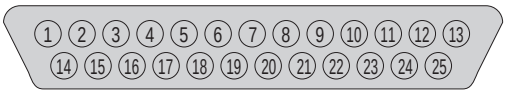
(1) Signal arrays of the PLC output unit must match signal arrays of the valve side.
(2) The working power is 12/24 VDC dedicated.
(3) The voltage could drop because of simultaneous energizing or the cable length. Confirm that the voltage drop for the solenoid is within 10% of the rated voltage.



T30 connector pin array (example)

*1: The numbers in the valve No. 1a, 1b, 2a, 2b… and so forth indicate the 1st station and the 2nd station. The alphabetic characters a and b indicate a side solenoid and b side solenoid.
Max. station No. differs depending on the model.
Check the individual specifications.

Connector pin No.



● For single solenoid valve

[Standard wiring]

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

[Double wiring]

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

● For double solenoid valve

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

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

● Mix (single/double solenoid mixture)

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

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

How to order

Cable with D sub-connector model No.

4GR - CABLE - D 0 0 - 1 - P70

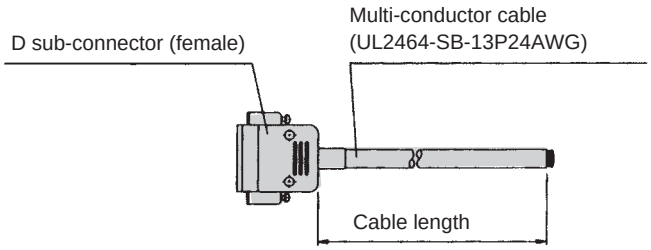
- Clean room specifications
- Ⓐ User interface
- Ⓑ Cable length

* Each model of pneumatic valves Available for D sub-connector T30/T31

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

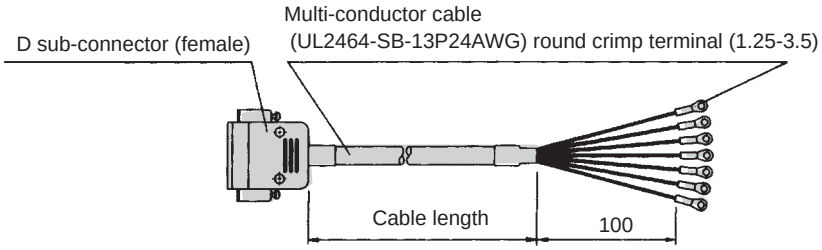
D sub-connector terminal No. and conductor

● 4GR-CABLE-D00-Ⓑ-P70



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

● 4GR-CABLE-D01-Ⓑ-P70



D sub-connector terminal No.		1	2	3	4	5	6	7	8	9	10	11	12	13
Conductor	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 point	2 point	2 point
	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	
Conductor	Insulator color	Yellow	Green	Green	Gray	Gray	White	White	Orange	Orange	Yellow	Yellow	Green	
	Mark type	2 point	2 point	2 point	2 point	2 point	2 point	2 point	3 point	3 point	3 point	3 point	3 point	
	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	

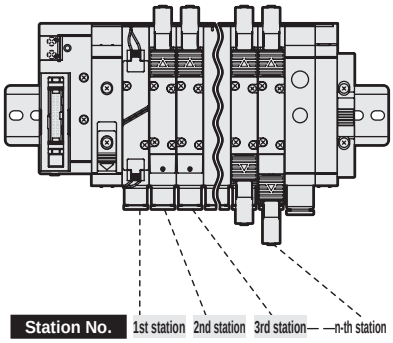
* Can be used up to 24 points. Cut the wires for surplus points before use.

Flat cable connector: wiring method T50

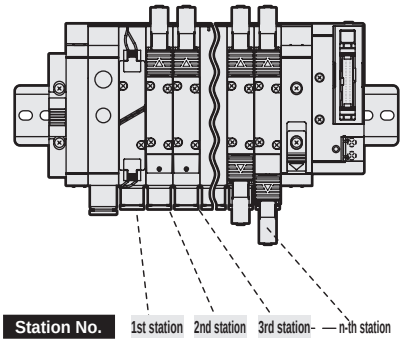
T50 connector

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 No. is assigned differently based on the PLC maker, but the function assignment is the same.
Layout using connectors and the triangular mark (▼) shown below as a reference. The ▼ mark is the reference for both the plug and socket. The manifold station Nos. are set in order from left with b side solenoid side (cap side for single) facing forward.

T50 (left side specifications)

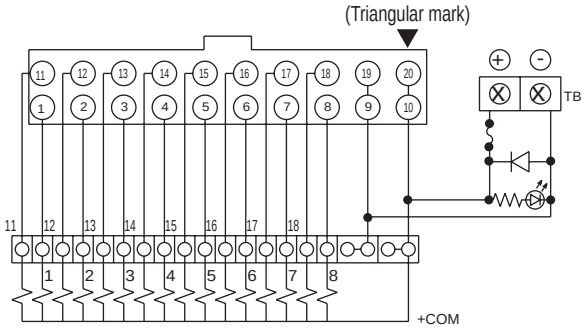


T50R (right side specifications)



Precautions for connector T50

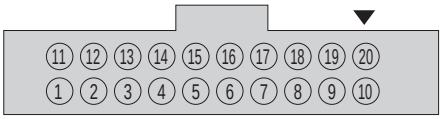
(1) Signal arrays of the PLC output unit must match signal arrays of the valve side. Direct connections with the PLC are limited. Use the dedicated cable for each PLC manufacturer.
(2) The working power is 12/24 VDC dedicated.
(3) When connecting the T50 to a general output unit, use the + terminal (20, 10) of the 20P connector as the + side common, and use the NPN transistor output open collector for the drive circuit.
(4) Do not connect this manifold to the input unit as major faults could occur in this device and in peripherals. Connect this manifold to the output unit.
(5) The voltage could drop because of simultaneous energizing or the 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 in the valve No. 1a, 1b, 2a, 2b… and so forth indicate the 1st station and the 2nd station. The alphabetic characters a and b indicate a side solenoid and b side solenoid. Max. station No. differs depending on the model. Check the individual specifications.

Connector pin No.



● For single solenoid valve

[Standard wiring]

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	(Void)	6a	(Void)	7a	(Void)	8a	(Void)	-power supply	+power supply
Pin No.	1	2	3	4	5	6	7	8	9	10
Valve No.	1a	(Void)	2a	(Void)	3a	(Void)	4a	(Void)	-power supply	+power supply

● For double solenoid valve

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

● Mix (single/double solenoid 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

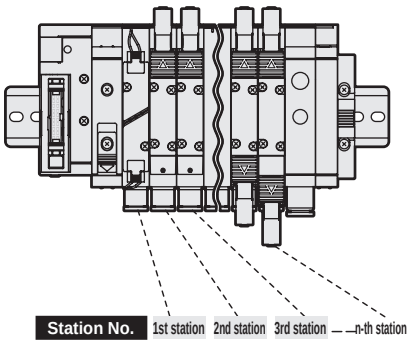
Pin No.	11	12	13	14	15	16	17	18	19	20
Valve No.	5a	(Void)	6a	(Void)	7a	7b	8a	(Void)	-power supply	+power supply
Pin No.	1	2	3	4	5	6	7	8	9	10
Valve No.	1a	(Void)	2a	(Void)	3a	3b	4a	4b	-power supply	+power supply

Flat cable connector: wiring method T51

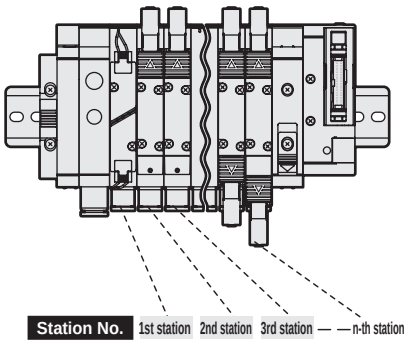
T51 connector

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 Nos. are assigned differently based on the PLC maker, but the function assignment is the same. Layout using connectors and the triangular mark (▼) shown below as a reference. The (▼) mark is the reference for both the plug and socket. The manifold station Nos. are set in order from left with b side solenoid (cap for single) facing forward.

T51 (left side specifications)

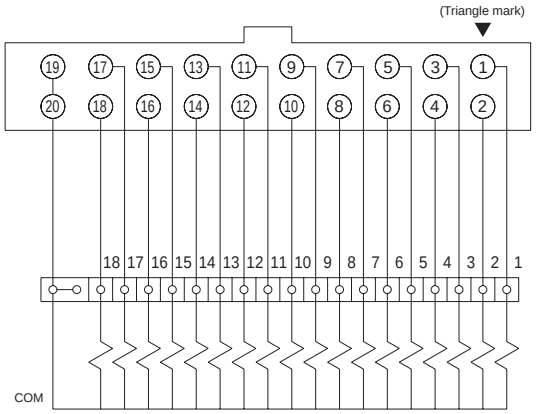


T51R (right side specifications)



Precautions for connector (T51)

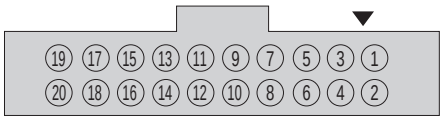
(1) Signal arrays of the PLC output unit must match signal arrays of the valve side.
(2) The working power is 12/24 VDC dedicated.
(3) The T51 is driven with a general output unit.
(4) Do not connect this manifold to the input unit as major faults could occur in this device and in peripherals. Connect this manifold to the output unit.
(5) The voltage could drop because of simultaneous energizing or the cable length. Confirm that the voltage drop for the solenoid is within 10% of the rated voltage.



T51 connector pin array (example)

*: The numbers in the valve No. 1a, 1b, 2a, 2b…and so forth indicate the 1st station and the 2nd station. The alphabetic characters a and b indicate a side solenoid and b side solenoid. Max. station number differs depending on the model No. Check the individual specifications.

Connector pin No.



● For single solenoid valve

[Standard wiring]

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

[Double wiring]

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

● For double solenoid valve

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

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

● Mix (single/double solenoid mixture)

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

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

Flat cable connector: wiring method T52

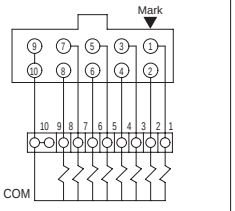
T52 connector

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 Nos. are assigned differently based on the PLC maker, but the function assignment is the same. Layout using connectors and the triangular mark (▼) shown below as a reference. The (▼) mark is the reference for both the plug and socket.
The manifold station Nos. are set in order from left with b side solenoid (cap for single) facing forward.

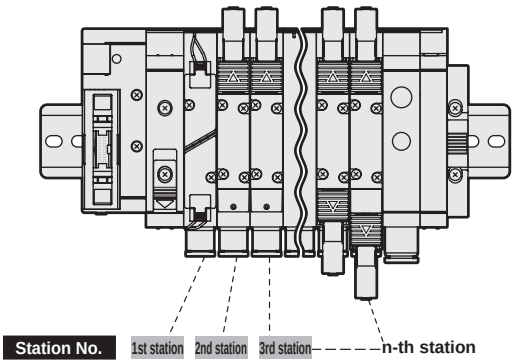
Precautions for connector (T52)

(1) Signal arrays of the PLC output unit must match signal arrays of the valve side.
(2) The working power is 12/24 VDC dedicated.
(3) The T52 is driven with a general output unit.
(4) Do not connect this manifold to the input unit as major faults could occur in this device and in peripherals. Connect this manifold to the output unit.
(5) The voltage could drop because of simultaneous energizing or the cable length. Confirm that the voltage drop for the solenoid is within 10% of the rated voltage.

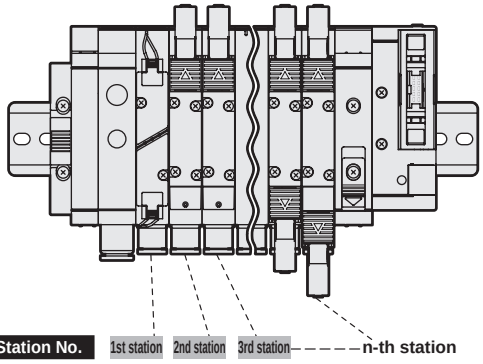
Connector pin layout diagram (top view) and internal circuit diagram



T52 (left side specifications)



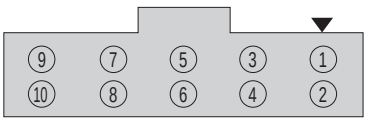
T52R (right side specifications)



T52 connector pin array (example)

*: The numbers in the valve No. 1a, 1b, 2a, 2b…and so forth indicate the 1st station and the 2nd station. The alphabetic characters a and b indicate a side solenoid and b side solenoid.
Max. station number differs depending on the model No. Check the individual specifications.

Connector pin No.



● For single solenoid valve

[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	(Void)	(Void)	(Void)	(Void)

● For double solenoid valve

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 solenoid 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

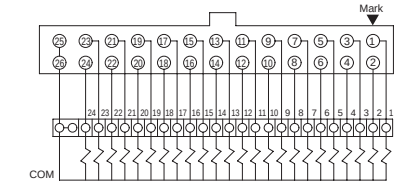
Pin No.	9	7	5	3	1
Valve No.	COM	4a	3a	2a	1a
Pin No.	10	8	6	4	2
Valve No.	COM	4b	(Void)	(Void)	(Void)

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 Nos. are assigned differently based on the PLC maker, but the function assignment is the same. Layout using connectors and the triangular mark (▼) shown below as a reference. The (▼) mark is the reference for both the plug and socket.
The manifold station Nos. are set in order from left with b side solenoid (cap for single) facing forward.

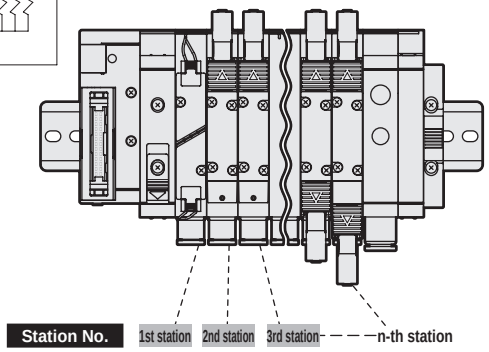
Connector pin layout diagram (top view) and internal circuit diagram



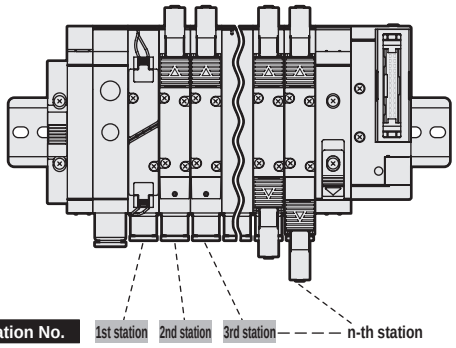
Precautions for connector (T53)

(1) Signal arrays of the PLC output unit must match signal arrays of the valve side.
(2) The working power is 12/24 VDC dedicated.
(3) The T53 is driven with a general output unit.
(4) Do not connect this manifold to the input unit as major faults could occur in this device and in peripherals. Connect this manifold to the output unit.
(5) The voltage could drop because of simultaneous energizing or the cable length. Confirm that the voltage drop for the solenoid is within 10% of the rated voltage.

T53 (left side specifications)



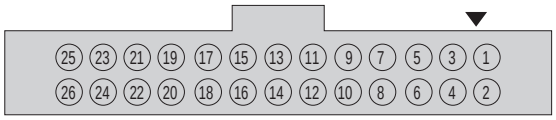
T53R (right side specifications)



T53 connector pin array (example)

*: The numbers in the valve No. 1a, 1b, 2a, 2b…and so forth indicate the 1st station and the 2nd station. The alphabetic characters a and b indicate a side solenoid and b side solenoid.
Max. station number differs depending on the model No. Check the individual specifications.

Connector pin No.



[Standard wiring]

● Single solenoid valve

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

● For double solenoid valve

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

● For mixed use (single/double solenoid mixture)

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

[Double wiring]

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

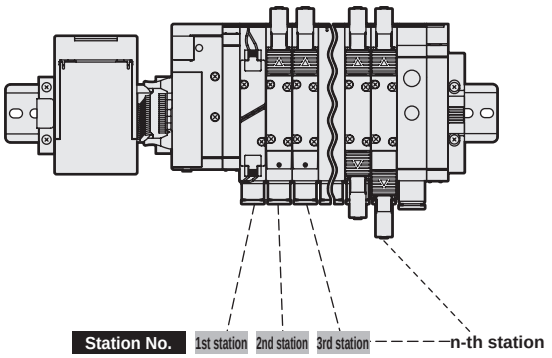
Pin No.	25	23	21	19	17	15	13	11	9	7	5	3	1
Valve No.	COM	12a	11a	10a	9a	8a	7a	6a	5a	4a	3a	2a	1a
Pin No.	26	24	22	20	18	16	14	12	10	8	6	4	2
Valve No.	COM	12b	11b	10b	9b	8b	7b	6b	5b	4b	3b	2b	1b

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

Serial transmission: (Wiring method T6G1)

T6G1 Serial transmission

- The slave 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 void numbers depending on the number of stations. These void outputs cannot be used for drive other than the solenoid manifold in use.
- The working power is 24 VDC.
- A slave unit for each communication system is used. Contact CKD for the specifications on the usable PLC model Nos., master unit model Nos. and communication systems.
- Output No. is assigned differently based on the PLC maker, but the function assignment is the same. Layout using connectors and the triangular mark (▼) shown below as a reference. The ▼ mark is the reference for both the plug and socket.



Combination of output No. and connector pin No.

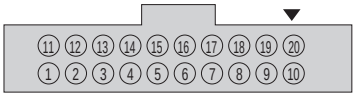
● T6G1

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 numbers in the valve No. 1a, 1b, 2a, 2b…and so forth indicate the 1st station and the 2nd station. The alphabetic characters a and b indicate a side solenoid and b side solenoid.
Max. station number differs depending on the model No. Check the individual specifications.

Connector pin No.



● For single solenoid valve

[Standard wiring]

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

[Double wiring]

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

● For double solenoid valve

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

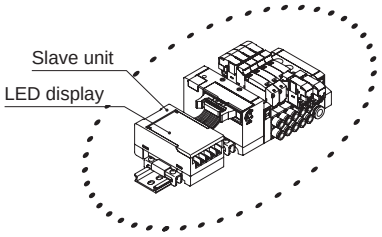
Pin No.	11	12	13	14	15	16	17	18	19	20
Valve No.	5a	5b	6a	6b	7a	7b	8a	8b	(Void)	+COM
Pin No.	1	2	3	4	5	6	7	8	9	10
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b	(Void)	+COM

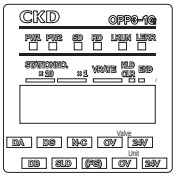
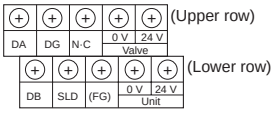
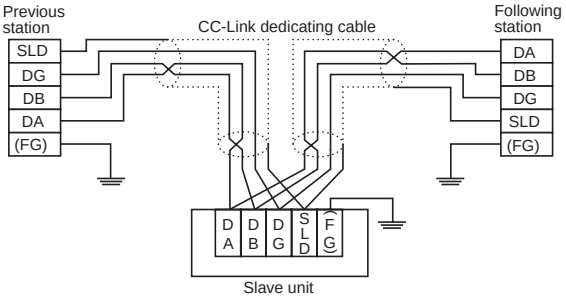
● Mix (single/double solenoid combination)

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

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

* Do not use the position marked (Void).



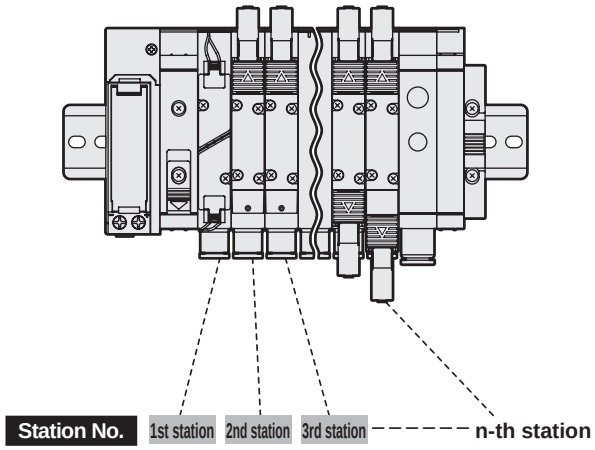
	LED display	Wiring method
T6G1		 

LED name	Display description
PW1	Lights when unit power is ON.
PW2	Lights when valve power is ON.
SD	Turns on when sending data.
RD	Turns on when receiving data.
L RUN	Lights when receiving normal data, and turns OFF at time over.
L ERR	Lights when transmission error occurs. Turns off when the time limit is exceeded. Lights when station No. setting or transmission speed setting is incorrect. Blinks when station No. setting or transmission speed setting changes midway.

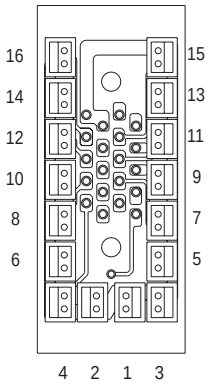
Serial transmission: Wiring method

T7 *serial transmission

- The slave unit's output No. is different with each 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 void numbers depending on the number of stations. These void outputs cannot be used for drive other than the solenoid manifold in use.
- The working power is 24 VDC.
- A slave unit for each communication system is used. Contact CKD for the specifications on the usable PLC model Nos., master unit model Nos. and communication systems.
- Securely fix the enclosed connector with set screw. (Proper tightening torque 0.3 N·m)



Internal circuit board connector pin No.



Combination of output No. and 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 numbers in the valve No. 1a, 1b, 2a, 2b…and so forth indicate the first station and 2nd station. The alphabetic characters a and b indicate the a side solenoid and the b side solenoid.
Max. station number differs depending on the model No. Check the individual specifications.

[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 solenoid 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

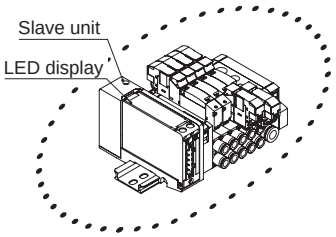
[Double wiring]

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

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

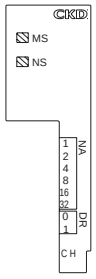
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	(Void)	2a	(Void)	3a	3b	4a	4b	5a	(Void)	6a	(Void)	7a	7b	8a	(Void)

* Do not use the position marked with (Void).

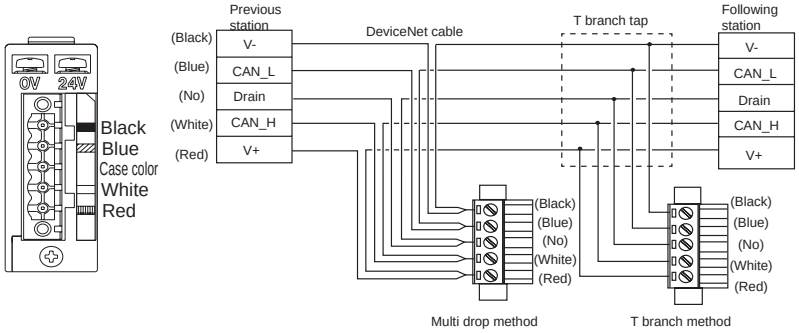


Model No.	LED display	Wiring method

T7D1

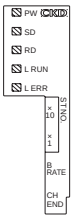


LED name	Display description
MS	Slave status is indicated with green and red LEDs. Errors are indicated using combination with "NS LED".
NS	Network status is indicated with green and red LEDs. Errors are indicated using combination with "MS LED".

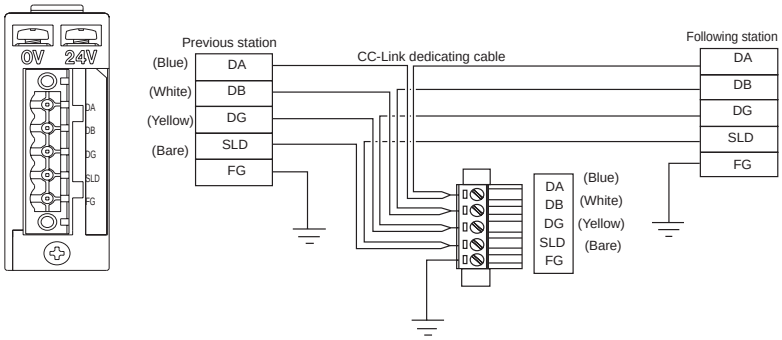


- Power supply line is connected to the terminal box.
- DeviceNet cable is connected to the connector.
- The power terminal box (24 V, 0 V) is insulated from the communication power terminal (V+, V-).
- Power supply for an unit and a valve is a common terminal.
- The wiring section connectors are enclosed.

T7G1

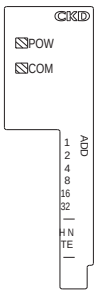


LED name	Display description
PW	Lights when power is ON.
SD	Lights when transmitting data.
RD	Lights when receiving data.
L RUN	Lights when receiving normal data. Turns OFF when time over occurs.
L ERR	Lights when transmission error occurs. Turns OFF when time over occurs. Lights when station No. or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

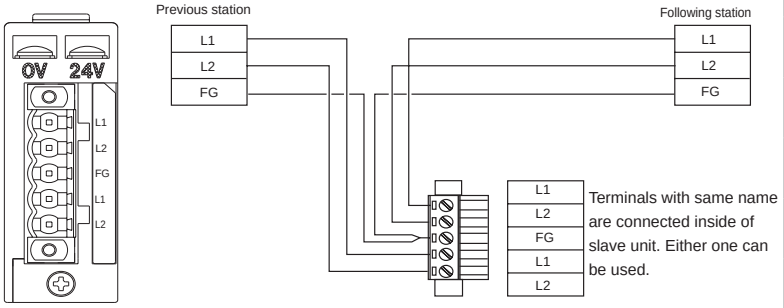


- Power supply line is connected to the terminal box.
- CC-Link cable is connected to the connector.
- Power supply for an unit and a valve is a common terminal.
- The wiring section connectors are enclosed.

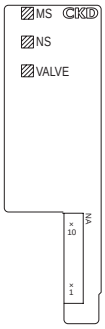
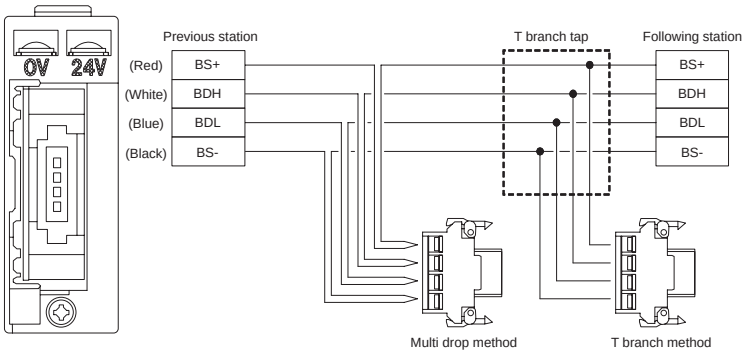
T7L1



LED name	Display description
POW	Light is on when power supplies of master and slave units are ON.
COM	Light is on when normally communicating with master unit. Light is off when communication failure continues for a certain period.



- Power supply line is connected to the terminal box.
- Communication line is connected to the connector.
- Power supply for an unit and a valve is a common terminal.
- The wiring section connectors are enclosed.

Model No.	LED display	Wiring method
T7S□1		

LED name	Display description
MS	Slave status is indicated with green and red lights. Errors are indicated using combination with "NS LED".
NS	Network status is indicated with green and red lights. Errors are indicated using combination with "MS LED".
VALVE	Green light is on when valve power is ON.

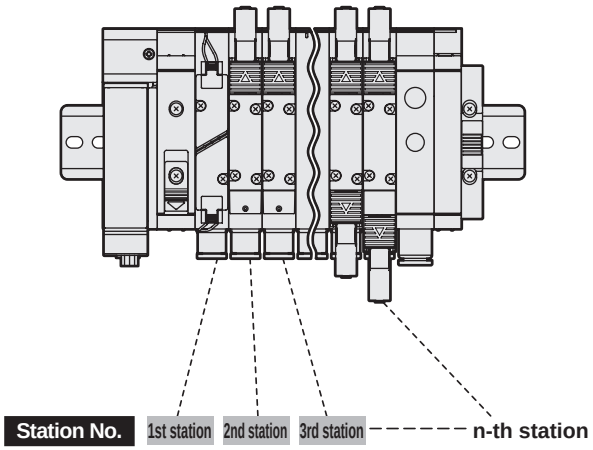
- Communication line/communication power supply are connected to the plug for communication.
- Valve power supply is connected to the terminal box.
- The plug for communication is not attached for this product.

MEMO

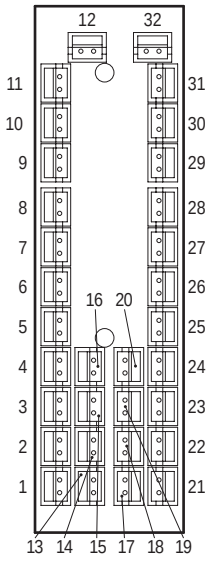
Serial transmission: Wiring method

T8 *serial transmission

- The slave unit's output No. is different with each 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 void numbers depending on the number of stations. These void outputs cannot be used for drive other than the solenoid manifold in use.
- The working power is 24 VDC.
- Securely fix the enclosed connector with set screw. (Proper tightening torque 0.3 N·m)



Internal circuit board connector pin No.



Combination of output No. and 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 numbers in the valve No. 1a, 1b, 2a, 2b…and so forth indicate the first station and 2nd station. The alphabetic characters a and b indicate the a side solenoid and the b side solenoid.
Max. station number differs depending on the model No. Check the individual specifications.

[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	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)

● 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

● For mixed use (single/double solenoid 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

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

● 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

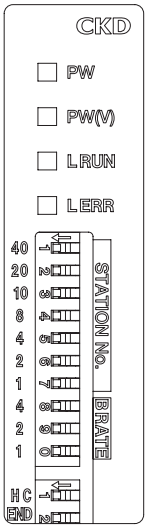
● For mixed use (single/double solenoid mixture)

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

* Do not use the position marked (Void).

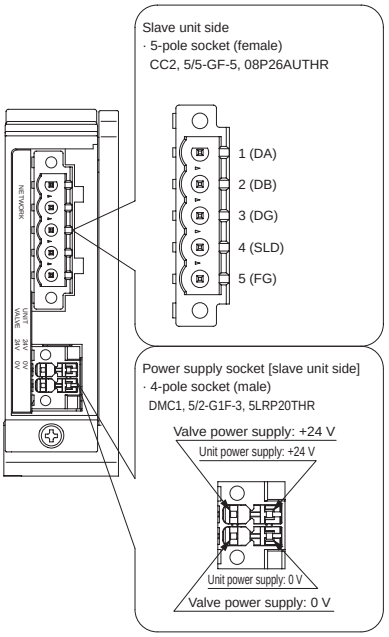
Model No.	LED display	Wiring section

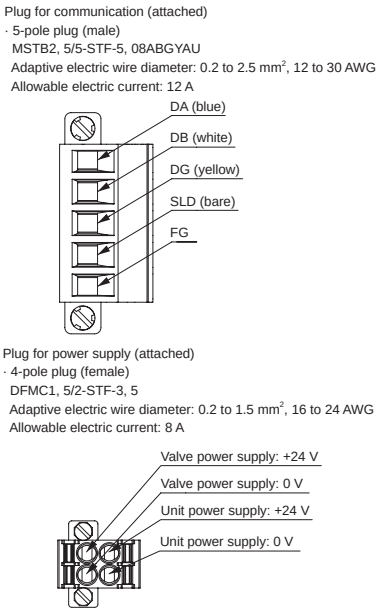
T8G*



LED Indicator descriptions

LED name	Display description
PW	Lights when unit power is ON. Lights red during normal operation
PW (V)	Lights when valve power is ON. Lights red during normal operation (unable to monitor when the unit power supply is not ON)
L RUN	Lights up when receiving CC-Link refresh data successfully. Lights red during normal operation
L ERR	Lights up (red) when failing to receive CC-Link data. Lights out during normal operation

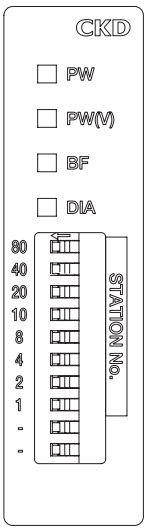




Socket pin configuration for communication

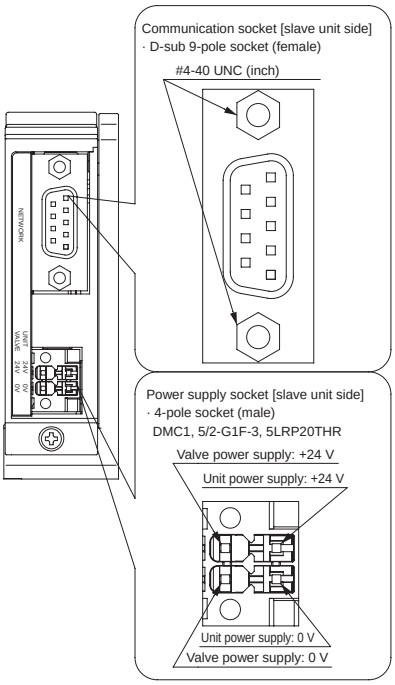
Pin	Signal name (cable color)	Function
1	DA (blue)	Communication line “DA”
2	DB (white)	Communication line “DB”
3	DG (yellow)	Communication line “DG”
4	SLD (bare)	Communication line “SLD”
5	FG	Ground

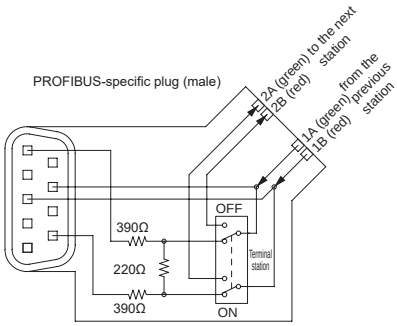
T8P*

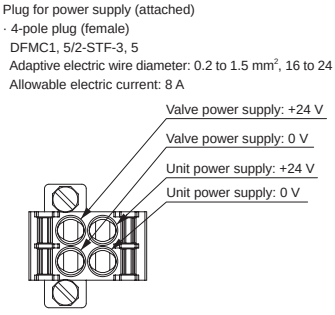


LED Indicator descriptions

LED name	Display description
PW	Lights when unit power is ON. Lights green during normal operation
PW (V)	Lights when valve power is ON. Lights green during normal operation (unable to monitor when the unit power supply is not ON)
BF	Lights up when failing to receive/send data. Lights red during anomalous operation
DIA	Lights up when a self-diagnostic failure occurs Lights red during anomalous operation







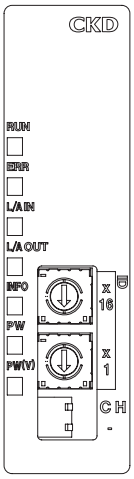
Socket pin configuration for communication

Pin	Signal name	Function
1	Shield	Shield
2	M24	Reserved
3	RxD/TxD-P	Data receive/send (plus)
4	CNTR-P	Reserved
5	DGND	GND

Pin	Signal name	Function
6	VP	Supply voltage of terminator (+5 V)
7	P24	Reserved
8	RxD/TxD-N	Data receive/send (minus)
9	CNTR-N	Reserved

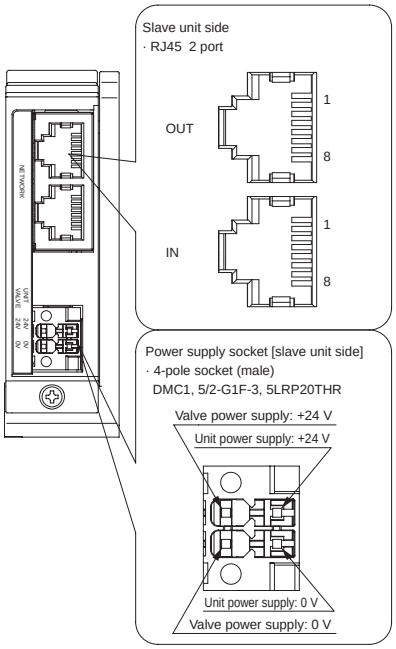
Model No.	LED display	Wiring method

T8EC*

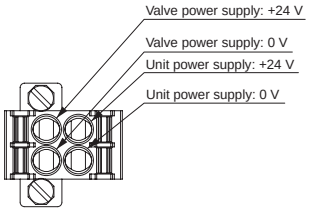


LED Indicator descriptions

LED name	Display description
RUN	Indicates the communication status of EtherCAT by lighting up/out or blinking this LED (green) (lights up green during normal communication)
ERR	Indicates the anomalous status of EtherCAT by lighting up/out or blinking this LED (red) (lights out during normal communication)
L/A IN	Indicates the status of the Ethernet port (IN side) by lighting up/out or fast-blinking this LED (green)
L/A OUT	Indicates the status of Ethernet port (OUT side) by lighting up/out or fast-blinking this LED (green)
INFO	Indicates the error status of the slave unit by lighting up this LED (red) (lights out during normal operation)
PW	Lights when unit power is ON. Lights green during normal operation
PW(V)	Lights when valve power is ON. Lights green during normal operation (unable to monitor when the unit power supply is not ON)



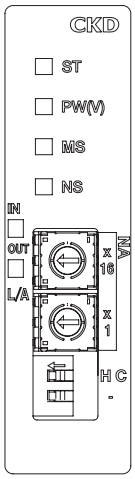
Plug for power supply (attached)
· 4-pole plug (female)
DFMC1, 5/2-STF-3, 5
Adaptive electric wire diameter: 0.2 to 1.5 mm^2, 16 to 24 AWG
Allowable electric current: 8 A



Socket pin configuration for communication

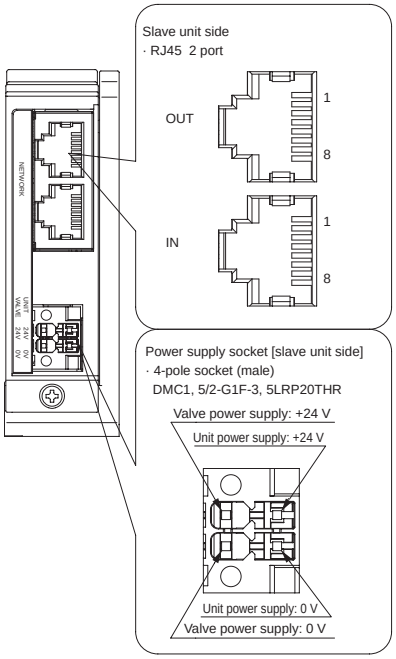
Port	Pin	Signal name	Function
IN/OUT	1	TXD+	Sending data, plus
	2	TXD-	Sending data, minus
	3	RXD+	Receiving data, plus
	4	Reserved	
	5	Reserved	
IN/OUT	6	RXD-	Receiving data, minus
	7	Reserved	
	8	Reserved	

T8EN*

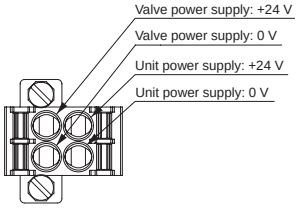


LED Indicator descriptions

LED name	Display description
ST	Indicates the status of the slave unit by lighting up or blinking this LED and changing its color (green, yellow)
PW (V)	Lights when valve power is ON. Lights green during normal operation (unable to monitor when the unit power supply is not ON)
MS	Indicates the status of the slave unit relating to EtherNet/IP by lighting up or blinking this LED and changing its color (green, red)
NS	Indicates the status of the network relating to EtherNet/IP by lighting up or blinking this LED and changing its color (green, red)
L/A IN	Indicates the status of the Ethernet port (IN side) by the color of this LED (green, yellow)
L/A OUT	Indicates the status of the Ethernet port (OUT side) by the color of this LED (green, yellow)



Plug for power supply (attached)
· 4-pole plug (female)
DFMC1, 5/2-STF-3, 5
Adaptive electric wire diameter: 0.2 to 1.5 mm^2, 16 to 24 AWG
Allowable electric current: 8 A

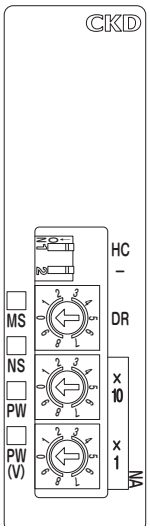


Socket pin configuration for communication

Port	Pin	Signal name	Function
IN/OUT	1	TXD+	Sending data, plus
	2	TXD-	Sending data, minus
	3	RXD+	Receiving data, plus
	4	Reserved	
	5	Reserved	
IN/OUT	6	RXD-	Receiving data, minus
	7	Reserved	
	8	Reserved	

T8D*

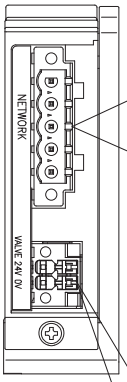
LED display



LED display description

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

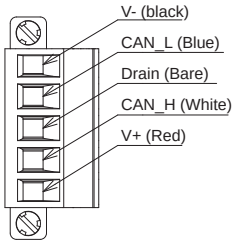
Wiring



Slave unit side
・ 5-pole socket (female)
CC2,5/5-GF-5,08P26AUTHRR56

1 (V=)
2 (CAN_L)
3 (Drain)
4 (CAN_H)
5 (V+)

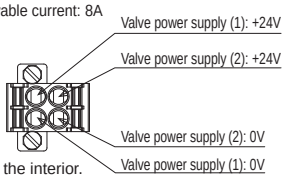
Communication plug (accessory)
・ 5-pole plug (male)
MSTB2,5/5-STF-5,08AUM
Compatible wire diameter: 0.2 to 2.5mm² 12 to 30AWG
Allowable current: 12A



Power supply socket [Slave unit side]
・ 4-pole socket (male)
DMC1,5/2-G1F-3,5-LRP20THRR44

Valve power supply (1): +24V
Valve power supply (2):+24V
Valve power supply (2):0V
Valve power supply (1): 0V

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



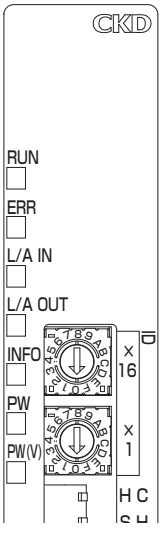
* Valve power supplies (1) and (2) are short-circuited in the interior.

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*

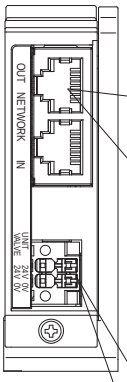
LED display



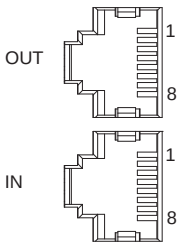
LED display description

LED name	Display description
RUN	Status of CC-Link IEF Basic communication indicated by LED ON status (ON/blinking)
ERR	Status of CC-Link IEF Basic abnormal communication indicated by LED ON status (ON/blinking)
L/A IN	Status of Ethernet port (IN side) indicated by ON LED status (ON/blinking)
L/A OUT	Status of Ethernet port (OUT side) indicated by LED ON status (ON/blinking)
INFO	Status of slave unit indicated by LED ON status (ON/blinking)
PW	Indicates unit power supply power status. Green lamp ON when powered ON
PW(V)	Indicates valve power supply power status. Green lamp ON when power turned ON (Cannot be monitored when unit power supply is OFF)

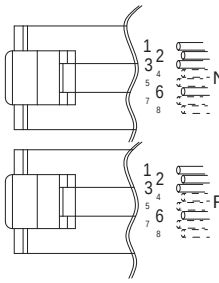
Wiring



Slave unit side
・ RJ45 2-port



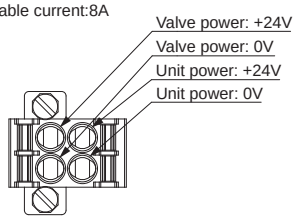
Communication plug (not accessory)



Power supply socket [Slave unit side]
・ 4-pole socket (male)
DMC1,5/2-G1F-3,5LRP20THR

Valve power supply: +24V
Unit power: +24V
Unit power: 0V
Valve power: 0V

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



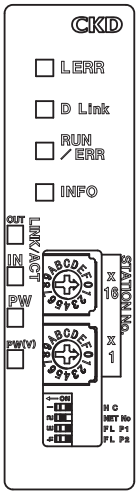
Communication plug pin array

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

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

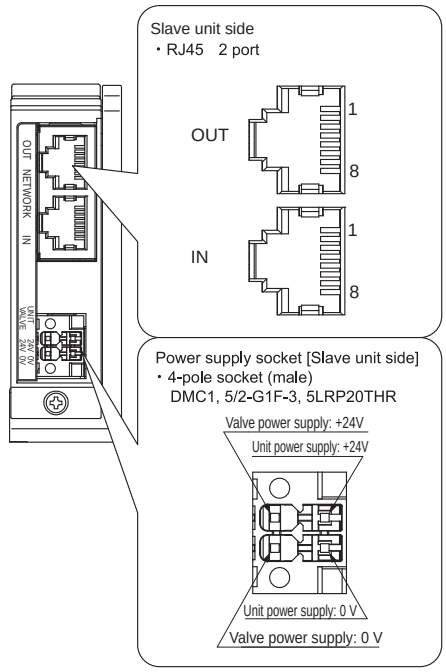
Model No.	LED display	Wiring

T8EF*



LED display description

LED□		□□□□
L ERR		Link status of Ethernet port is indicated by the LED state
D Link		Communication status of CC-Link IE Field is indicated by the LED state
RUN / ERR		Status of slave unit operation/communication is indicated by the LED state
INFO		Status of the slave unit is indicated by the LED state
Link/ ACT	OUT (P1)	Status of the Ethernet port (OUT side) is indicated by the LED state
	IN (P2)	Status of the Ethernet port (IN side) is indicated by the LED state
PW		Indicates the power status of the unit power supply. Lights when power is turned ON.
PW□V□		Indicates the power status of the valve power supply. Lights when power is ON (Cannot be monitored when the unit power is OFF.)



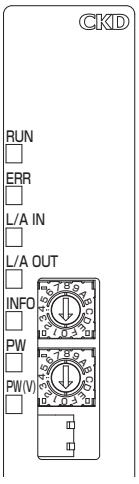
Communication plug pin array

Port	Pin	Signal name	LED
IN/OUT	1	BI_DA+	Transmit/receive data, positive
	2	BI_DA-	Transmit/receive data, negative
	3	BI_DB+	Transmit/receive data, positive
	4	BI_DC+	Transmit/receive data, positive

Port	Pin	Signal name	LED
IN/OUT	5	BI_DC-	Transmit/receive data, negative
	6	BI_DB-	Transmit/receive data, negative
	7	BI_DD+	Transmit/receive data, positive
	8	BI_DD-	Transmit/receive data, negative

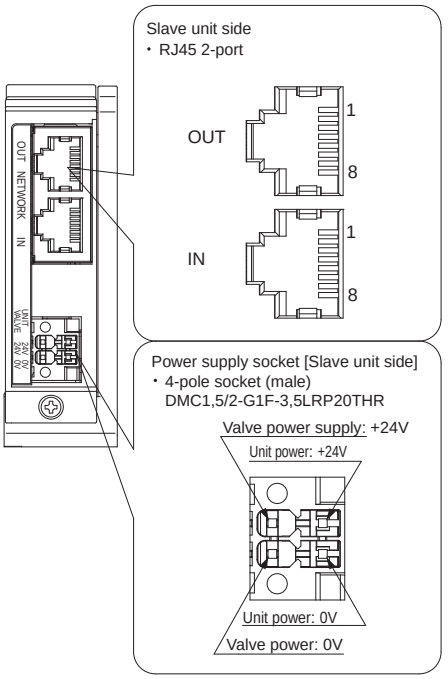
*1000BASE-T straight wiring compliant

T8EP*



LED display description

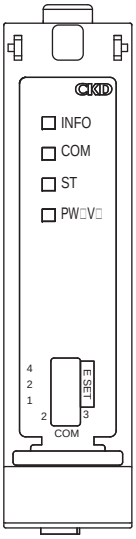
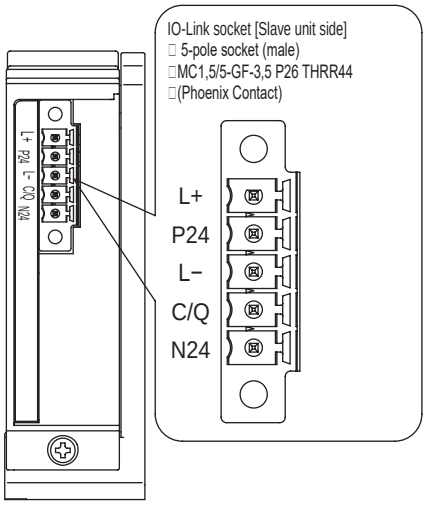
LED name	Display description
RUN	Communication status of PROFINET indicated by LED ON status (ON/blinking)
ERR	Communication abnormal status of PROFINET indicated by LED ON status (ON/blinking)
L/A IN	Status of Ethernet port (IN side) indicated by ON LED status (ON/blinking)
L/A OUT	Status of Ethernet port (OUT side) indicated by LED ON status (ON/blinking)
INFO	Status of slave unit indicated by LED ON status (ON/blinking)
PW	Indicates unit power supply power status. Green lamp ON when powered ON
PW(V)	Indicates valve power supply power status. Green lamp ON when power turned ON (Cannot be monitored when unit power supply is OFF)



Communication plug pin array

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

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

Model No.	LED display	Wiring
T8KC*		

LED display description

LED name	Display description
INFO	Green lamp is ON when normal Blinks red when abnormal
COM	OFF: Unit power is not turned ON Green ON: Unit power is ON □□□□(IO-Link communication not implemented) Green blinking: unit power is ON (IO-Link communication)
ST	OFF: No abnormalities Red blinking (low speed): With maintenance Red blinking (high speed): With warning Red light: With error
PW□V□	OFF: Valve power supply not turned ON Green ON: Valve power is ON * Cannot be monitored when the unit power is not turned ON

Switch setting

Output setting during communication error

E SET			Valve output operation in the event of a communication error
4	2	1	
OFF	OFF	OFF	all points OFF
	OFF	ON	All points final output data
	ON	OFF	all points ON
	ON	ON	All points final reception process data
ON	–	–	Operations set above by IO-Link communication for each point

Communication speed setting

COM	Communication speed
2□3	
OFF	COM3
ON	COM2

Note: Wiring connection connectors
If the connector fits the slave unit side connector listed below, it can be used.

	Slave unit side connector model No.	Recommended connector model No. on wiring side (attachment)
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 Weidmueller Corp.	BLZP50.8Hc/05/180F SN OR BX Weidmüller Corp.
T7S	XW7D-PB4-R OMRON Corporation	The plug for communication is not attached for this product. [Recommended communication plug] DCN4-BR4 Flat connector plug (without sheath) Manufactured by OMRON Corporation DCN4-TB4 Open connector (terminal box) Manufactured by OMRON Corporation HCN-TB4LMZG-#B10 Open connector (terminal box): 10 pieces included Manufactured by Honda Tsushin Kogyo Co., Ltd. HCN-A4SMUG-#B10 Connector plug (VCTF/flat): 10 pieces included Manufactured by Honda Tsushin Kogyo Co., Ltd. [Recommended connector for multiple wiring] DCN4-MD4 Connector for multiple wiring Manufactured by OMRON Corporation HCN-MD4SAG-#B10 Connector for multiple wiring: 10 pieces included Manufactured by Honda Tsushin Kogyo Co., Ltd.

Model No.		Slave unit side connector model No.	Recommended connector model No. on wiring side (attachment)
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 attached with this product. Recommended plug for communication 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 × 2 port)	Communication plug is not attached with this product. Cable with recommended plug attached IETP-SB-S***□ (Shield grounding on both ends) [JMACS] ***: Cable 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 × 2 port)	Communication plug is not attached with this product. Cable with recommended plug attached IETP-SB-S***□ (Shield grounding on both ends) [JMACS] ***: Cable 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.]
T8EF** (CC-Link IE Field)	Communication	RJ45 connector (8 pin x 2-port)	Communication plug is not attached with this product. Cable with recommended plug □ IETP-SB-S**** (Both end shield 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.]
T8KC** (IO-Link)	Communication	RJ45 connector (□ pin x □-port)	Communication plug is not attached with this product. Cable with recommended plug □ IETP-SB-S**** (Both end shield ground) [JMACS] ***: Length □: Unit M = meter C = centimeter
	Power supply	MC1,5/5-GF-3,5P26 THRR44 [Phoenix Contact Corp.]	Accessories □FK-MCP1, 5/5-STF-3, 5 [Phoenix Contact Corp.]

MEMO

M4G (metal base manifold)

* Refer to page 738 for MN4G (block manifold).

Pattern 1 Expansion to the position where preparatory wiring is equipped with

The masking plate at the planned expansion position is equipped with preparatory wiring beforehand. For the valve expansion method when preparatory wiring is equipped with, follow the steps below.

❶ Remove the preparatory socket from the masking plate.

❷ Remove the masking plate from the base.

❸ Mount the valve for expansion and assemble the socket.

Pattern 2 Expansion to the position where no preparatory wiring is equipped with

When changing the single to the double, additional internal wiring to the b side solenoid for expansion is required. For the valve expansion method when no preparatory wiring is equipped with, follow the steps below.

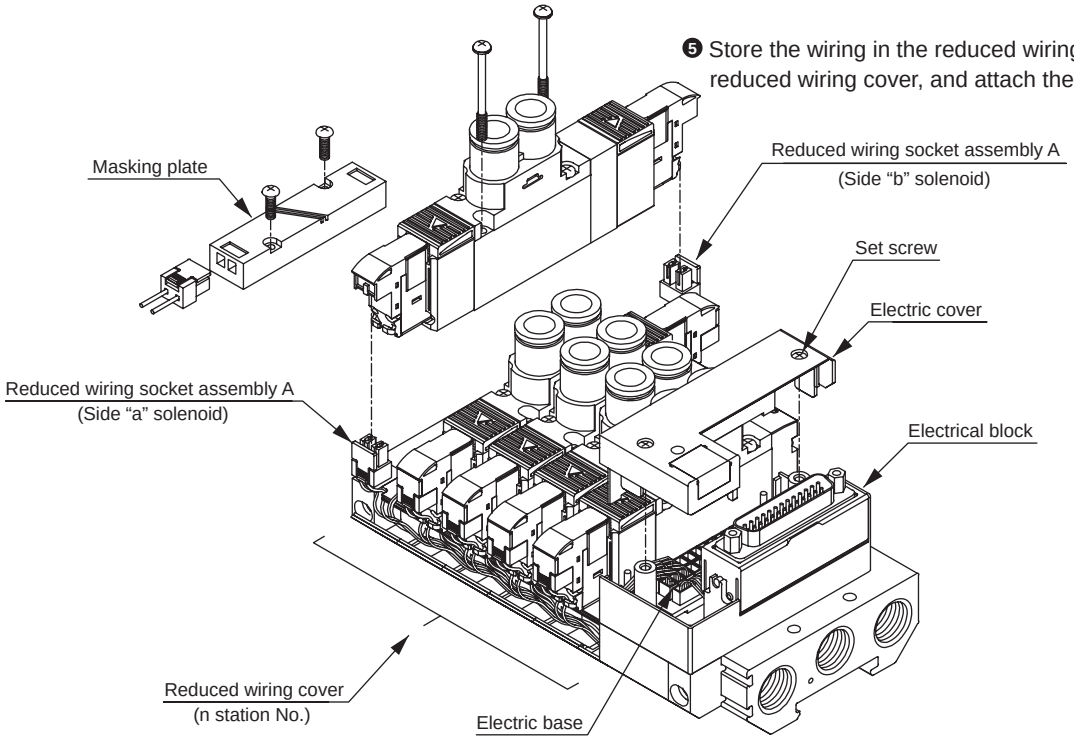
❶ Remove the electric cover and open the reduced wiring cover.

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

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

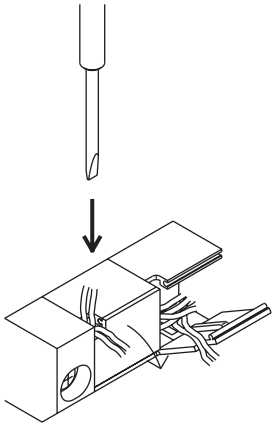
❹ Route the wire to inside of the electric block and insert the connector to the electric base.

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



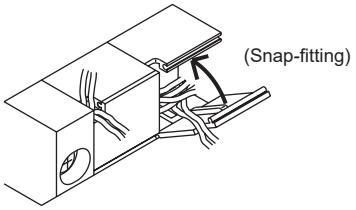
How to open and close the reduced wiring cover

How to open the reduced wiring cover



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

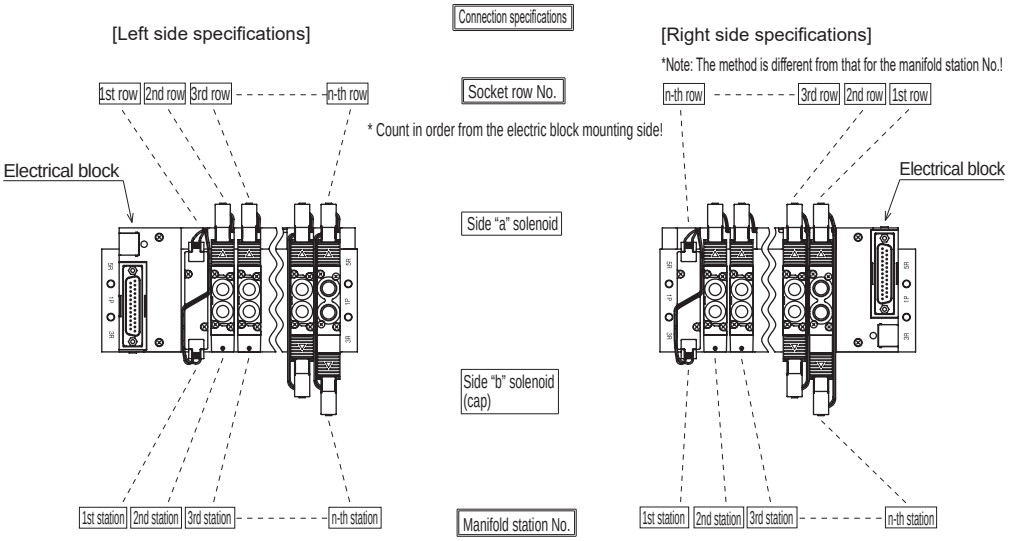
How to close the reduced wiring cover



Pass the cable through the cable-through hole of the reduced wiring cover and close the cover. Be careful about line bite of cable, and close the cover until it clicks into place.

Selection of expansion socket assembly

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

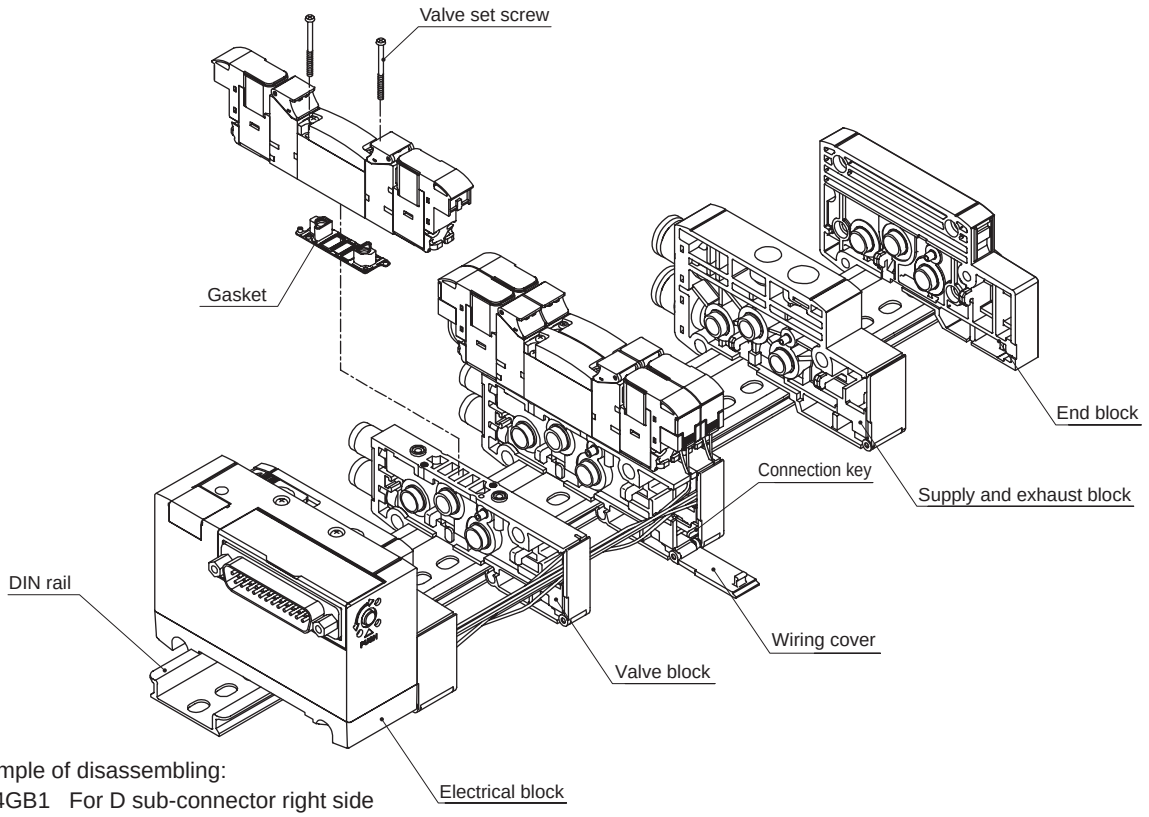


Note
1. The same for T50/T51

Model No. of socket assembly for expansion
A type connector socket assembly
4G *1 R - SOCKET- ASSY- A *2 *3 - *4

*1: Series		*2: Connection specifications		*3: Solenoid position		*4: Number of socket row	
1	4G1	Blank	Left	A	a side	1	1st row
2	4G2	R	Right	B	b side	to	to
3	4G3					24	24th row

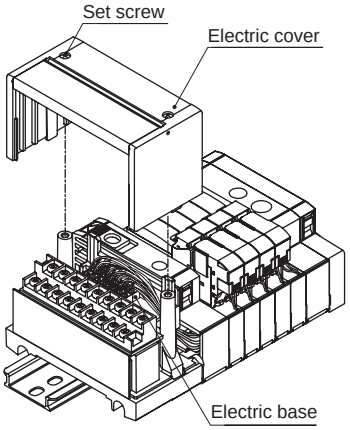
MN4G (exploded view of block manifold)



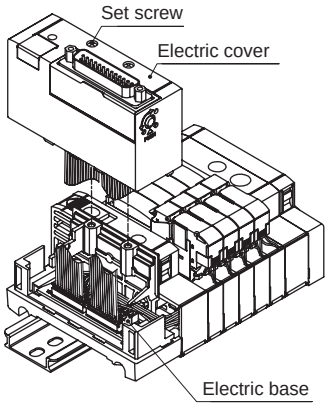
Example of disassembling:
MN4GB1 For D sub-connector right side wiring specifications

Removing the electric cover

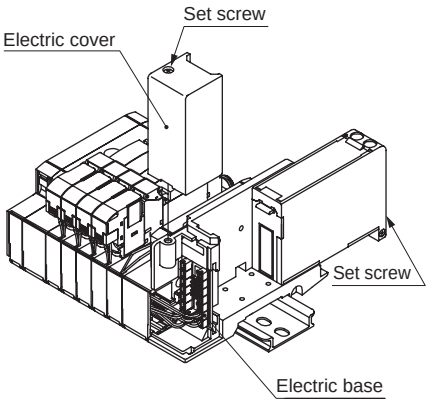
T10R/T11R



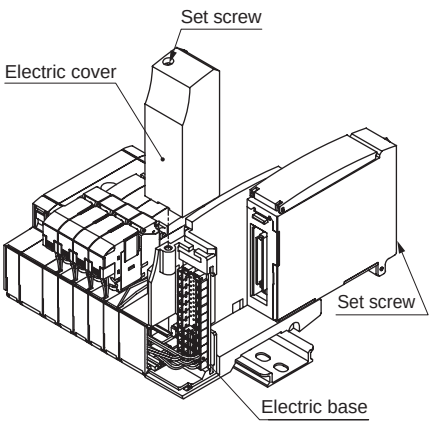
T30R/T5*R



T7*



T8*



Replacing valves

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

Mounting method
Perform the reverse order of removing.
Refer to the right table below for the recommended tightening torque for the set screw.

Note) Different valve blocks are used for single wiring (V1) and double wiring (V2) respectively. Accordingly, when changing from single to double or from double to single, exchange the whole of discrete valve block with solenoid valve.

Recommended tightening torque for the valve set 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

(1) Loosen the DIN rail fixing screws.
(2) Open the reduced wiring cover
(3) Pull the connection key of where the manifold to be increased, and remove the connection between blocks.
(4) Remove the cover of the electric block to expose the electric base. (Removing the electric cover)
(5) Connect (*2) the signal wire (socket assembly) (*1) to electrical base, and mount the signal wire to valve block. (Fig. 1)
*1 [Refer to Selection of expansion socket assembly below.]
*2 [Refer to pages 740 to 743 for instructions on connecting to the electric base.]
(6) Mount the valve block to be added to the DIN rail. (Fig. 2)
(7) Press and connect so that there is no gap between blocks, and press the key.
(8) Close wiring cover and tighten electrical block cover, while taking care not to catch signal wires. (tightening torque: 0.35 to 0.50 N·m)
(9) Push the operation button to the direction indicated by the arrow. The built-in DIN rail fixing brackets slide to the fixed position.
(10) While holding down so that there is no gap between blocks, tighten DIN rail set screws. At this time, make sure that the operation button locates on the fixing 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

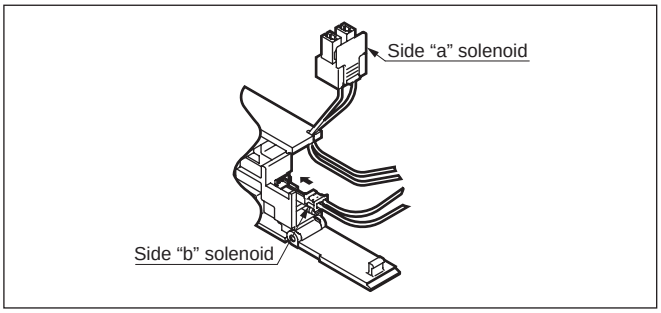
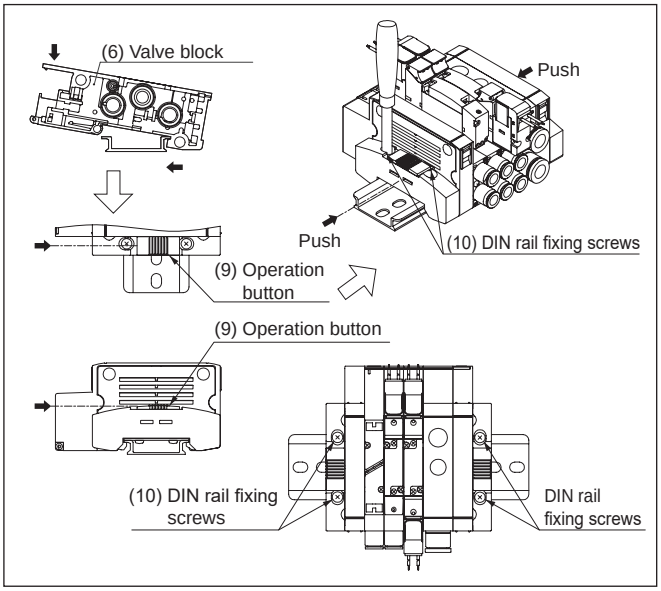


Fig. 2



Selection of expansion socket assembly

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

Calculation of W

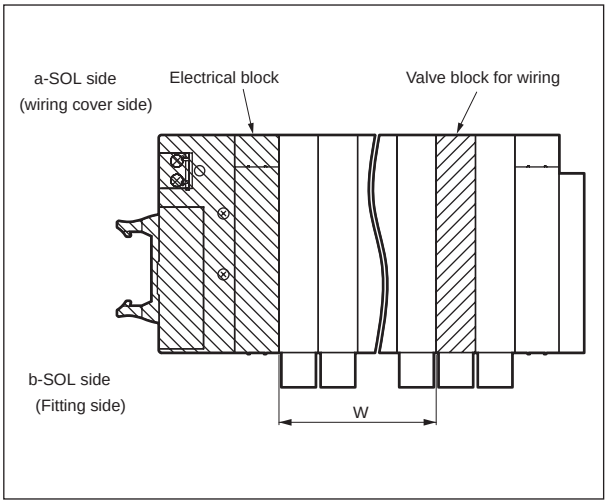
• MN4G1
W = (10.5 × n) + (16 × m) + (10.5 × l)

• MN4G2
W = (16 × n) + (18 × m) + (10.5 × l)
n: Number of valve blocks m: Number of supply and exhaust blocks
l: Number of partition blocks

• 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

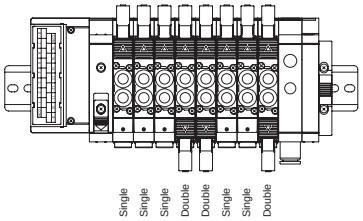
Selection No.	Type of wiring		
	T10/11 (R)	T30/5*/6* (R)	T7*/T8*
2		0	25 or less
3	20 or less	Over 0 to 30	Over 25 to 55
4	Over 20 to 70	Over 30 to 80	Over 55 to 105
5	Over 70 to 120	Over 80 to 130	Over 105 to 155
6	Over 120 to 170	Over 130 to 180	Over 155 to 205
7	Over 170 to 260	Over 180 to 270	Over 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 electric base (standard wiring)

The corresponding rules for connector and valve on the electric base vary depending on the reduced wiring specifications (T10, T11, T30, T50, T51, T52, T53, T6*, T7*, T8*). For connector wiring, check the connector No. printed on the base.

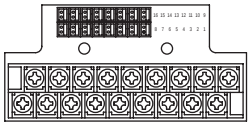
For wiring of mix (consolidation), the manifold configuration as shown in the right figure is indicated as an example.

⊙ Manifold configuration (Example)

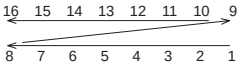


T10

Electric circuit board assembly



Wire in order of arrow



Compatibility with valves

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

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

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

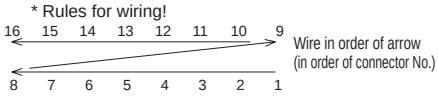
Terminal block No.	16	15	14	13	12	11	10	9
Valve No.	8b	8a	7b	7a	6b	6a	5b	5a
Terminal block No.	8	7	6	5	4	3	2	1
Valve No.	4b	4a	3b	3a	2b	2a	1b	1a

Wire in order of arrow

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

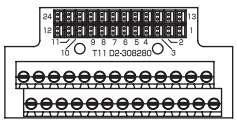
Terminal block No.	16	15	14	13	12	11	10	9
Valve No.	(Void)	(Void)	(Void)	(Void)	(Void)	8b	8a	7a
Terminal block No.	8	7	6	5	4	3	2	1
Valve No.	6a	5b	5a	4b	4a	3a	2a	1a

* Rules for wiring!

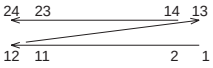


T11

Electric circuit board assembly



Wire in order of arrow



Compatibility with valves

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)

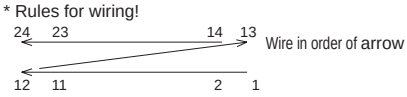
Connector No.	24	23	22	21	20	19	18	17	16	15	14	13
Valve No.	12b	12a	11b	11a	10b	10a	9b	9a	8b	8a	7b	7a
Connector No.	12	11	10	9	8	7	6	5	4	3	2	1
Valve No.	6b	6a	5b	5a	4b	4a	3b	3a	2b	2a	1b	1a

Wire in order of arrow

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

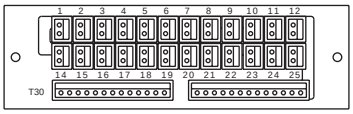
Connector No.	24	23	22	21	20	19	18	17	16	15	14	13
Valve No.	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)
Connector No.	12	11	10	9	8	7	6	5	4	3	2	1
Valve No.	(Void)	8b	8a	7a	6a	5b	5a	4b	4a	3a	2a	1a

* Rules for wiring!



T30

Electric circuit board assembly



Wire in order of arrow

Compatibility with valves

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)

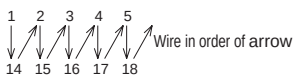
Connector No.	1	2	3	4	5	6	7	8	9	10	11	12
Valve No.	1a	2a	3a	4a	5a	6a	7a	8a	9a	10a	11a	12a
Connector No.	14	15	16	17	18	19	20	21	22	23	24	25
Valve No.	1b	2b	3b	4b	5b	6b	7b	8b	9b	10b	11b	12b

Wire in order of arrow

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

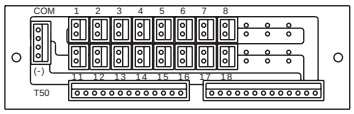
Connector No.	1	2	3	4	5	6	7	8	9	10	11	12
Valve No.	1a	3a	4b	5b	7a	8b	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)
Connector No.	14	15	16	17	18	19	20	21	22	23	24	25
Valve No.	2a	4a	5a	6a	8a	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)

* Rules for wiring!

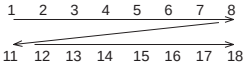


T50/T6G1

Electric circuit board assembly



Wire in order of arrow



Compatibility with valves

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)

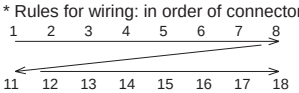
Connector No.	1	2	3	4	5	6	7	8
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b
Connector No.	11	12	13	14	15	16	17	18
Valve No.	5a	5b	6a	6b	7a	7b	8a	8b

Wire in order of arrow

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

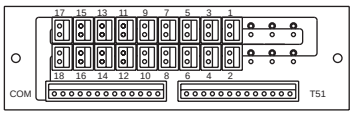
Connector No.	1	2	3	4	5	6	7	8
Valve No.	1a	2a	3a	4a	4b	5a	5b	6a
Connector No.	11	12	13	14	15	16	17	18
Valve No.	7a	8a	8b	(Void)	(Void)	(Void)	(Void)	(Void)

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

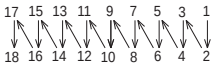


T51

Electric circuit board assembly



Wire in order of arrow



Compatibility with valves

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

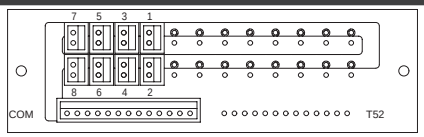
3) For mix (consolidation) (solenoid No. up to 18 positions)

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

* Rules for wiring!
Wire in order of arrow (in order of connector No.)

T52

Electric circuit board assembly



Wire in order of arrow

Compatibility with valves

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

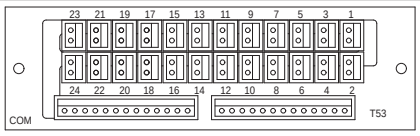
3) For mix (consolidation) (solenoid No. up to 8 positions)

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

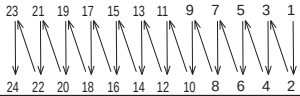
* Rules for wiring!
Wire in order of arrow (in order of connector No.)

T53

Electric circuit board assembly



Wire in order of arrow



Compatibility with valves

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

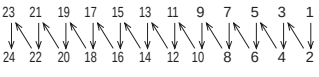
2) For double SOL (MF station No. up to 12 stations)

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)

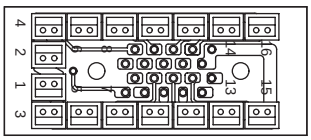
Connector No.	23	21	19	17	15	13	11	9	7	5	3	1
Valve No.	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	8b	7a	5b	4b	3a	1a
Connector No.	24	22	20	18	16	14	12	10	8	6	4	2
Valve No.	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	8a	6a	5a	4a	2a

* Rules for wiring!
Wire in order of arrow (in order of connector No.)

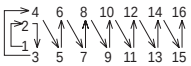


T7*

Electric circuit board assembly



Wire in order of arrow



Compatibility with valves

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

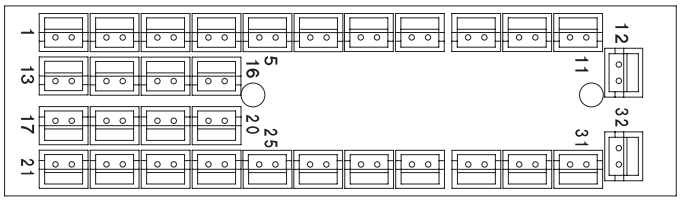
3) For mix (consolidation) (solenoid No. up to 16 positions)

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

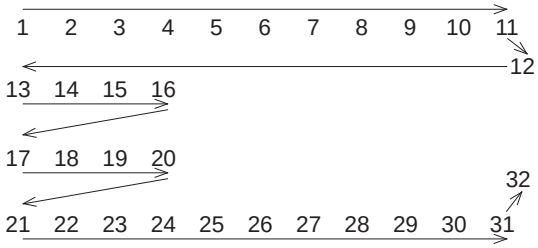
* Rules for wiring!
Wire in order of arrow (in order of connector No.)

T8*

Electric circuit board assembly



Wire in order of arrow



Compatibility with valves

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	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)

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

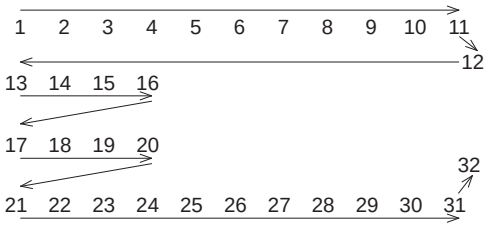
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Valve No.	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Valve No.	9a	9b	10a	10b	11a	11b	12a	12b	13a	13b	14a	14b	15a	15b	16a	16b

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	(Void)	(Void)	(Void)	(Void)	(Void)
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Valve No.	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)

Wire in order of arrow

* Rules for wiring!



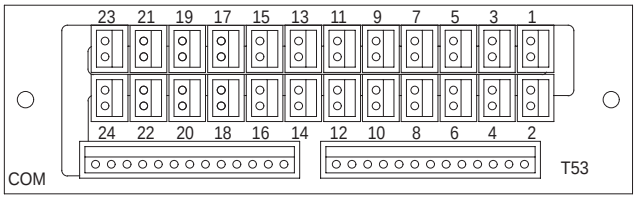
Wire in order of arrow
(in order of connector No.)

Instructions for connecting electric base (double wiring)

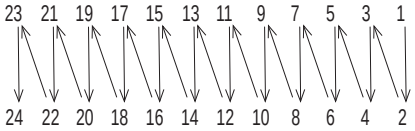
The double wiring specifications correspond to the wiring of the double solenoid not depending on the switching position classification of solenoid valve to be mounted. Accordingly, the standard wiring and the double SOL only of double wiring have the same wiring. As an example, T53 is shown in the figure below. Refer to this example.

T53 (example)

Electric circuit board assembly



Wire in order of arrow



Compatibility with valves

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.	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)

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

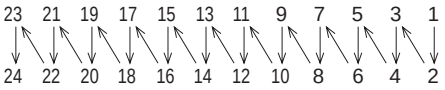
Connector No.	23	21	19	17	15	13	11	9	7	5	3	1
Valve No.	12a	11a	10a	9a	8a	7a	6a	5a	4a	3a	2a	1a
Connector No.	24	22	20	18	16	14	12	10	8	6	4	2
Valve No.	12b	11b	10b	9b	8b	7b	6b	5b	4b	3b	2b	1b

Wire in order of 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.	(Void)	(Void)	(Void)	(Void)	8a	7a	6a	5a	4a	3a	2a	1a
Connector No.	24	22	20	18	16	14	12	10	8	6	4	2
Valve No.	(Void)	(Void)	(Void)	(Void)	8b	(Void)	(Void)	5b	4b	(Void)	(Void)	(Void)

* Rules for wiring!
Wire in order of 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) Effective cross-sectional area of the solenoid valve used for calculation in table below is a value at 2-position.
(4) This selection guide should be used as a guideline. Make sure your actual use conditions and refer to our sizing program for details.
(5) Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

Standard system list 4G (metal base)

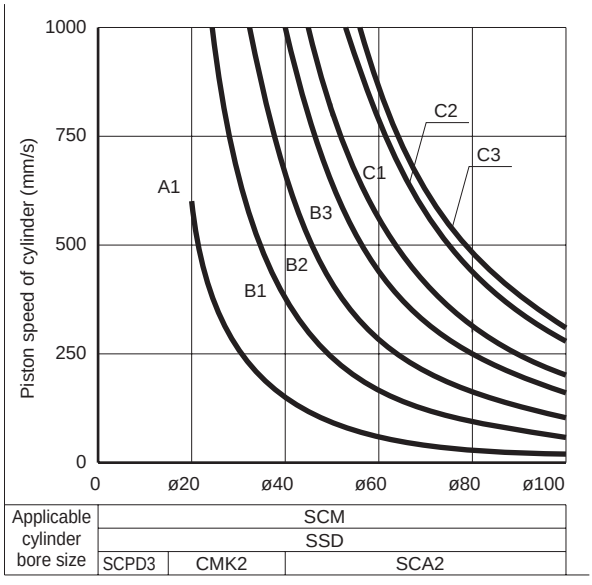
* Refer to page 746 for MN4G (block manifold).

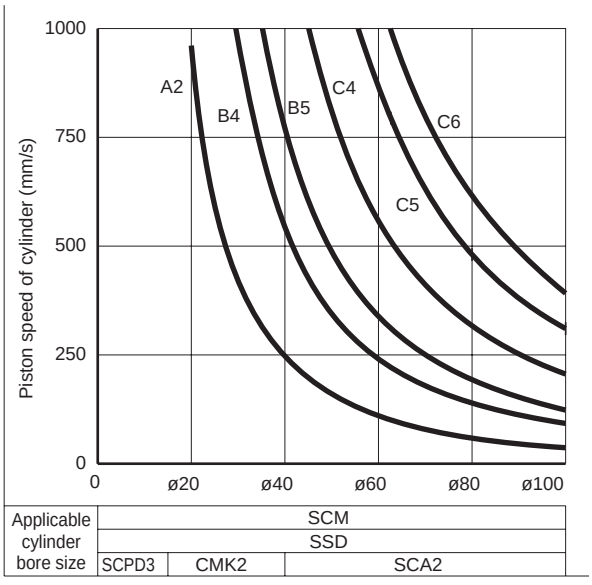
[Discrete]

Series	Body piping					
	Model No.	System No.	Speed controller	Silencer	Piping	Combined effective cross-sectional area (mm^2) Pipe length 1 m
4G1	4GA110R-C4	A1	SC3W-M5-4	SLM-M5	ø4 × ø2.5	1.0
	4GA110R-C6	B1	SC1-6	SLM-M5	ø6 × ø4	2.5
4G2	4GA210R-C6	B2	SC1-6	SLW-6S	ø6 × ø4	4.3
	4GA210R-C8	B3	SC1-8	SLW-6S	ø8 × ø5.7	6.5
4G3	4GA310R-C8	C1	SC1-8	SLW-8S	ø8 × ø5.7	8.3
	4GA310R-C10	C2	SC1-10	SLW-8S	ø10 × ø7.2	11.6
	4GA310R-C10	C3	SC1-15	SLW-8S	ø10 × ø7.2	12.7

Series	Base piping					
	Model No.	System No.	Speed controller	Silencer	Piping	Combined effective cross-sectional area (mm^2) Pipe length 1 m
4G1	4GB110R-06	A2	SC3W-6-4	SLW-6S	ø4 × ø2.5	1.6
	4GB110R-06	B4	SC1-6	SLW-6S	ø6 × ø4	3.6
4G2	4GB210R-08	B5	SC1-8	SLW-8S	ø6 × ø4	5.0
	4GB210R-08	C4	SC1-10	SLW-8S	ø8 × ø5.7	8.3
4G3	4GB310R-10	C5	SC1-10	SLW-10L	ø10 × ø7.2	12.6
	4GB310R-10	C6	SC1-15	SLW-10L	ø12 × ø8.9	15.9

* System Nos. are indicated in the graph below.

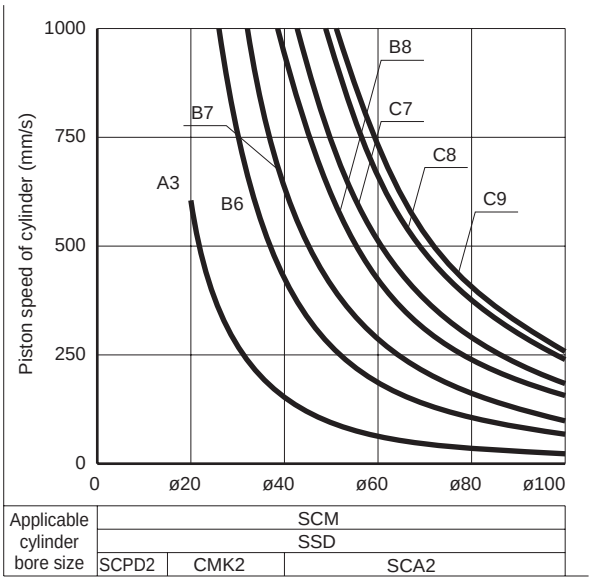




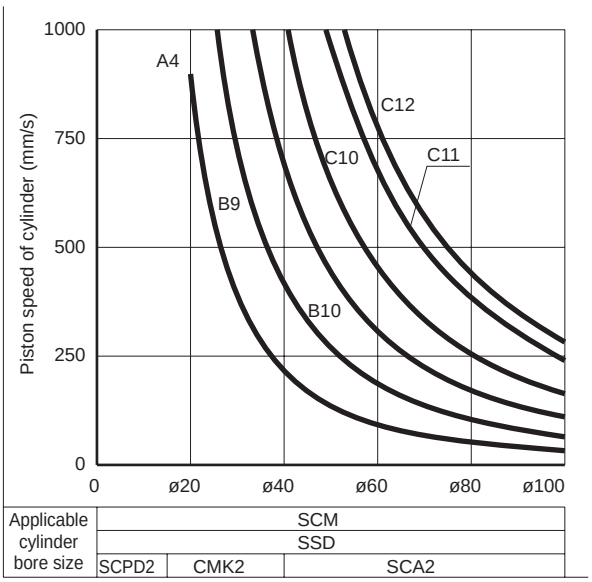
[Manifold] (With internal exhaust check valve)

Series	Body piping					
	Model No.	System No.	Speed controller	Silencer	Piping	Combined effective cross-sectional area (mm^2) Pipe length 1 m
4G1	M4GA110R-C4	A3	SC3W-M5-4	SLW-6S	ø4 × ø2.5	1.0
	M4GA110R-C6	B6	SC1-6	SLW-6S	ø6 × ø4	2.8
4G2	M4GA210R-C6	B7	SC1-6	SLW-8S	ø6 × ø4	4.2
	M4GA210R-C8	B8	SC1-8	SLW-8S	ø8 × ø5.7	6.2
4G3	M4GA310R-C8	C7	SC1-8	SLW-10L	ø8 × ø5.7	7.5
	M4GA310R-C10	C8	SC1-10	SLW-10L	ø10 × ø7.2	9.8
	M4GA310R-C10	C9	SC1-15	SLW-10L	ø10 × ø7.2	10.5
Series	**Base piping**					
	Model No.	**System No.**	**Speed controller**	**Silencer**	**Piping**	**Combined effective cross-sectional area (mm^2) Pipe length 1 m**
4G1	M4GB110R-C4	A4	SC3W-6-4	SLW-6S	ø4 × ø2.5	1.5
	M4GB110R-C6	B9	SC1-6	SLW-6S	ø6 × ø4	2.8
4G2	M4GB210R-C6	B10	SC1-8	SLW-8S	ø6 × ø4	4.6
	M4GB210R-C8	C10	SC1-10	SLW-8S	ø8 × ø5.7	6.7
4G3	M4GB310R-C10	C11	SC1-10	SLW-10L	ø10 × ø7.2	10.0
	M4GB310R-C10	C12	SC1-15	SLW-10L	ø12 × ø8.9	11.5

* System No. are indicated in the graph below.



Applicable cylinder bore size	SCM		
	SSD		
	SCPD2	CMK2	SCA2



Applicable cylinder bore size	SCM		
	SSD		
	SCPD2	CMK2	SCA2

Standard system list **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	Combined effective cross-sectional area (mm²)
MN4G1	C4	A1	SC3W-M5-4	ø4 × ø2.5	ø6 × ø4 × 3 m	1.0
	C4	A2	SC3W-6-4	ø4 × ø2.5	ø6 × ø4 × 3 m	1.4
	C6	B1	SC1-6	ø6 × ø4	ø8 × ø5.7 × 3 m	2.7
MN4G2	C6	B2	SC1-6	ø6 × ø4	ø8 × ø5.7 × 3 m	3.8
	C8	B3	SC1-8	ø8 × ø5.7	ø10 × ø7.2 × 3 m	5.9

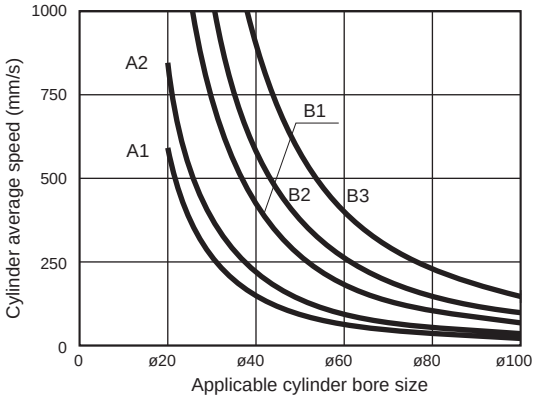
2. Open atmospheric exhaust (with exhaust muffler built-in)

Series	Solenoid valve port size	System No.	Speed controller	Cylinder piping pipe length 1 m	End block	Combined effective cross-sectional area (mm²)
MN4G1	C4	A3	SC3W-M5-4	ø4 × ø2.5	N4G1-EX	1.0
	C4	A4	SC3W-6-4	ø4 × ø2.5		1.5
	C6	B4	SC1-6	ø6 × ø4		2.9
MN4G2	C6	B5	SC1-6	ø6 × ø4	N4G2-EX	4.2
	C8	B6	SC1-8	ø8 × ø5.7		5.9

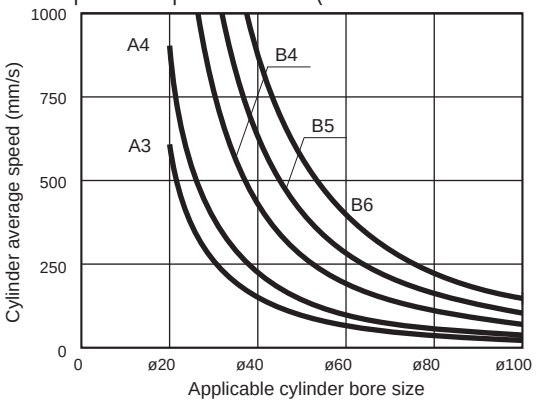
3. Exhaust with silencer attached

Series	Model No.	System No.	Speed controller	Cylinder piping pipe length 1 m	Silencer	Combined effective cross-sectional area (mm²)
MN4G1	C4	A5	SC3W-M5-4	ø4 × ø2.5	SLW-H6	1.0
	C4	A6	SC3W-6-4	ø4 × ø2.5	SLW-H6 SLW-H8	1.5
	C6	B7	SC1-6	ø6 × ø4		2.7
MN4G2	C6	B8	SC1-6	ø6 × ø4	SLW-H8 SLW-H10	3.8
	C8	B9	SC1-8	ø8 × ø5.7		6.0

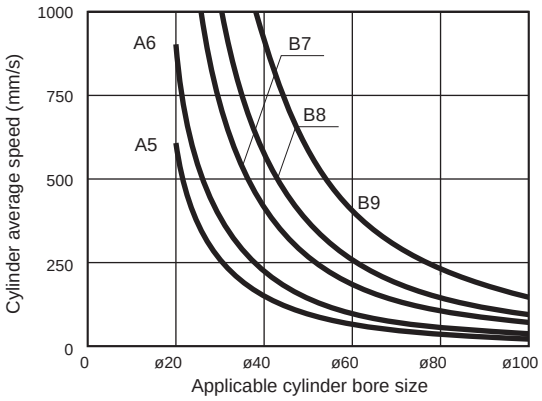
1. Common exhaust



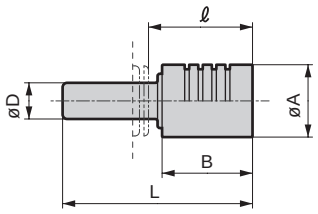
2. Open atmospheric exhaust (with exhaust muffler built-in)



3. Exhaust with silencer attached



● 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

The device selection guide is useful to make a rough selection of suitable device models.

● Selecting control device

It is assumed that the inside diameter of the cylinder tube to be used and how fast the cylinder operates are predefined as operating conditions. Use the table below as a guideline, select a value of theoretical reference speed of the cylinder.

Cylinder speed mode	Theoretical reference speed (mm/s)
Low speed	250
Medium speed	500
High speed	750
Ultrahigh speed	1,000

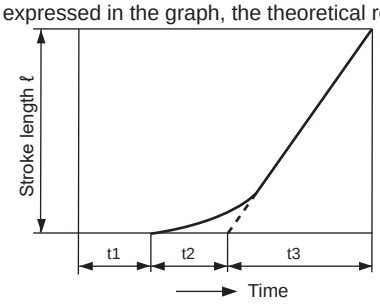
Refer to the tables shown in the device selection guide-1 (pages 748, 749), select an inside diameter of the cylinder tube and a standard system No. suitable for the theoretical reference speed.

● Theoretical reference speed: Indicates a level of cylinder speed and is expressed by the following equation. (This value approximately equals to the speed with no load applied. Adding a load will significantly lower the speed.)

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

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

As expressed in the graph, the theoretical reference speed is a speed in the range of uniform motion.



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

t1 : Time period until start moving
t2 : Time period of primary delay
t3 : Time period in uniform motion
ℓ : Stroke length

● Note: t1 and t2 change in accordance with the load. With no load applied, this change can be almost neglected.

● Required flow rate: An instantaneous flow rate observed when the cylinder operates at the speed of *vo*, described in the tables below. In the tables, the values are obtained at P = 0.5 MPa. A value of required flow rate is required when selecting 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 cross-sectional area: A combined effective cross-sectional area for the exhaust side circuit, which required to operate the cylinder at the speed of *vo*. (combined effective cross-sectional area of solenoid valve, speed controller, silencer and piping) Effective cross-sectional area S and sonic conductance C are converted as S ≒ 5.0 ×C.

● Suitable standard system: A most suitable combination of solenoid valve, speed controller, silencer and pipe diameter when operating the cylinder at the speed of *vo*. Combinations described in the tables are applicable for the pipe length of 1 m.

Based on the actual units, required flow rate: Q is expressed by the following equations:

$\frac{P_2 + 0.1}{P_1 + 0.1} \leq b$, then the choke flow is expressed by

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

$\frac{P_2 + 0.1}{P_1 + 0.1} > b$, then the subsonic flow is expressed by

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

Q : Air flow rate [dm^3/min (ANR)], SI unit dm^3 (cubic decimeter) can be expressed by 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]

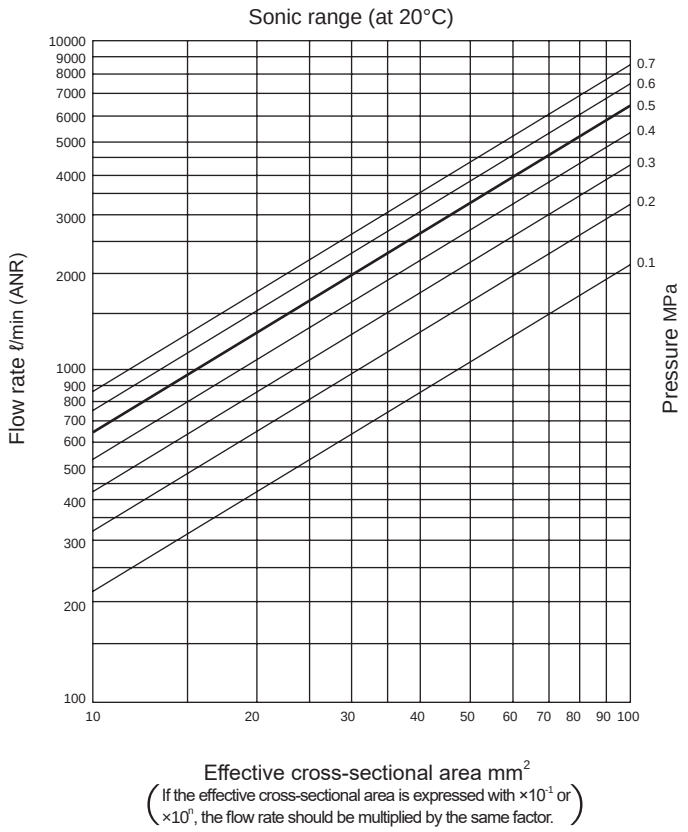
When calculating with Effective cross-sectional area: S, C = S/5 is assigned to C in the equation above.
For the subsonic flow, b = 0.5 is assigned in the equation (2) above.

4G Series [Device selection guide-1]

Cylinder bore (mm)	Theoretical reference speed (mm/s)	Required flow rate (ℓmin)(ANR)	Required effective cross-sectional area (mm^2)	Suitable standard system No.			
				Discrete		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 744, 745 for system No.**

[Effective cross-sectional area]



[Clean air system components]

Clean air system components

Product name	Model No.	Port size	Max. flow rate (ℓmin, atmospheric pressure equivalent)
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

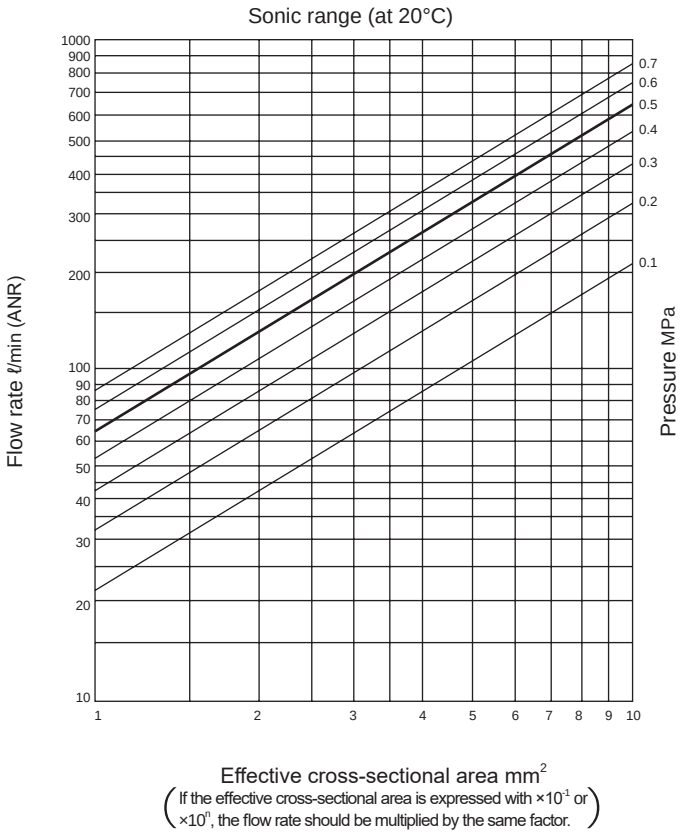
Note) Max. flow rate: For FRL, FR and R, primary pressure: 0.7 MPa, setting pressure: 0.5 MPa, pressure drop: 0.1 MPa are applied. For Air filter, flow rates at primary pressure: 0.7 MPa, pressure drop: 0.02 MPa; for Lubricator, primary pressure: 0.5 MPa, pressure: 0.03 MPa.

MN4G Series [Device selection guide-1]

Cylinder bore (mm)	Theoretical reference speed (mm/S)	Required flow rate (ℓmin)(ANR)	Required effective cross-sectional area (mm^2)	Suitable standard system No.		
				1. Common exhaust	2. Open atmospheric exhaust	3. Exhaust with silencer attached
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 746 for system No.**

[Effective cross-sectional area]



[Clean air system components]

Clean air system components

Product name	Model No.	Port size	Max. flow rate (ℓmin, atmospheric pressure equivalent)
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 FRL, FR and R, primary pressure: 0.7 MPa, setting pressure: 0.5 MPa, pressure drop: 0.1 MPa are applied.
For Air filter, flow rates at primary pressure: 0.7 MPa, pressure drop: 0.02 MPa; for Lubricator, primary pressure: 0.5 MPa, pressure: 0.03 MPa.