How to complete manifold specification sheet

●ManifoldModel No.(Example)

TVG1M- X | B | 99CX | 3 | JA3C - | 06 | BH | -HP1

❶ Switching position ❷ Piping direction ❸ Port size ❹ Voltage ❺ Reduced wiring connection ❻ Station No. ❼ Option

Page	Code	Model No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14		33	34	35	36	37	38	39	40	Qty
													Installation positi														
P. 34	[D side]Wiring block *1	TVG1P-TB-08CS-JA3C	O																								1
P. 36	Valve block with solenoid valve	TVG1P-1B04CS3-H-HP1		O	O																						2
		TVG1P-2B06CS3-HP1				O																						1
		TVG1P-2B06CS3-T-HP1					O																					1
		TVG1P-3B06CS3-HP1						O																				1
		TVG1P-																										
		TVG1P-																										
P. 36	Valve block with blanking plate Spacer cannot be selected.	TVG1P-ZB06CS3							O																		1
P. 48-52	Spacer Only one type can be selected for one station.	TVG1P-																									
P. 46	Intermediate supply/exhaust block	TVG1P-QB-																									
P. 45	[U side]End block *1	TVG1P-EB-08CS								O																	1

*1 : If KZ is selected, select KZ for both U side and D side. Also, select Z or KZ for the intermediate supply/exhaust block.

• Enter in order from the left end with the piping port facing the front. (Please enter the block model number selected from the block component configuration (pages 32 to 33) and the layout instructions.)
• Enter the total quantity of specified blocks in the quantity column at the far right of the table.
• Please mark O the necessary attached parts.
• There is a manifold specification sheet for each model number, so please fill in the corresponding specification sheet.

Reference circuit diagram Simplified circuit diagram of manifold model No. (example)

●Regarding mounting rail length (L$_5$) for DIN rail mount

①Calculate the rail length using the calculation method shown below. The calculated length becomes the standard length.
②In the case of the standard length, it is not necessary to enter the length (L5) in the specification sheet. Please enter it if a non-standard length is required.

● How to calculate mounting rail length

Manifold Length (L$_4$) = (A x ☐)+(B x ☐)+ C + D

Mounting railLength (L$_5$) = L$_5$' x 12.5   A, B, C, D indicate the length (width) of each block.

$$L_5' \quad \frac{L_4+40}{12.5} \quad \rightarrow \text{Round up decimal point}$$

Rail mounting pitch (L$_6$) = L5 - 12.5

Block length (width) dimension table (mm)

			TVG1	TVG2
A	Valve block		10.5	16
B	Intermediate supply/exhaust block		16	18
C	Wiring block	EA1☐, GA1C	110	112
		FA1☐	91.2	93.2
		GA1A, GA1B	87.2	89.2
		J☐☐☐	74.1	76.1
D	End block		40.2	42.2

●Mounting rail length quick reference table

L$_4$: ManifoldLength	47.5 or less	Over 47.5 to 60 or less	60 to 72.5	72.5 to 85	85 to 97.5	97.5 to 110	110 to 122.5	122.5 to 135	135 to 147.5	147.5 to 160	160 to 172.5	172.5 to 185	185 to 197.5	197.5 to 210	210 to 222.5	222.5 to 235	235 to 247.5	247.5 to 260	260 to 272.5	272.5 to 285	285 to 297.5	297.5 to 310	310 to 322.5	322.5 to 335	335 to 347.5	347.5 to 360
L$_5$: Rail length	87.5	100	112.5	125	137.5	150	162.5	175	187.5	200	212.5	225	237.5	250	262.5	275	287.5	300	312.5	325	337.5	350	362.5	375	387.5	400
Pitch L$_6$	75	87.5	100	112.5	125	137.5	150	162.5	175	187.5	200	212.5	225	237.5	250	262.5	275	287.5	300	312.5	325	337.5	350	362.5	375	387.5

*1 : If L1 exceeds this table, calculate using "How to calculate mounting rail length".

TVG1M (Reduced wiring) Block manifold specification sheet

●Person in charge ●Quantity sets ●Delivery date Month Day Date of issue / /

Slip No.	Order No.

Company

Dept./Name

Purchase Order No.

Model No.

TVG1M-☐☐☐☐-☐☐-HP1

❶ Switching position ❷ Piping direction ❸ Port size ❹ Voltage ❺ Reduced wiring connection ❻ Station No. ❼ Option

When filling out, select the model number from the block component configuration (P. 32 to 33 and 80 to 81).

Page	Code		Model No.	1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Qty
																	Installation position																												
P. 34/82	[D side]Wiring block	*1	TVG1P-T																																										
P. 36/84	Valve block with solenoid valve		TVG1P- -HP1																																										
			TVG1P- -HP1																																										
			TVG1P- -HP1																																										
			TVG1P- -HP1																																										
			TVG1P- -HP1																																										
			TVG1P- -HP1																																										
			TVG1P- -HP1																																										
			TVG1P- -HP1																																										
P. 36/84	Valve block with blanking plate Spacer cannot be selected.		TVG1P-Z																																										
			TVG1P-Z																																										
			TVG1P-Z																																										
48 to 52 96-99	Spacer Only one type can be selected for one station.		TVG1P-P-																																										
			TVG1P-R-																																										
			TVG1P-PC- *2																																										
			TVG1P-SR- *3																																										
			TVG1P-IS																																										
P. 46/94	Intermediate supply/exhaust block		TVG1P-Q - -																																										
			TVG1P-Q - -																																										
P. 45/93	[U side]End block	*1	TVG1P-E - -																																										

*1 : If KZ is selected, select KZ for both U side and D side. Also, select Z or KZ for the intermediate supply/exhaust block.
*2 : ❷Cannot be selected for direct piping.
*3 : ❷For direct piping, only P port pressure reduction specification can be selected.

P. 54	Mounting rail	$L_5=$ ☐

* Enter value in multiples of 12.5.
(How to calculate length, P. 189)

Included parts	Blank plug		Silencer	Tag plate (Included) *4
	PG-P2-B	GWP4-B	SLW-H6	
	GWP6-B	GWP8-B	SLW-H8	

Specify required quantity.
*4 : ❷Cannot be selected for direct piping.

Cable clamp for centralized terminal block	Cable with multi-connector	Multi-connector only	Cable with D-sub connector	Tube removal tool
TVGP-SCL-18A	TVGP-RMC-	TVGP-RM21WTP-	TVGP-CABLE-D0- -	
TVGP-SCL-18B				

TVG1M (Serial transmission device station) Block manifold specification sheet

●Person in charge ●Quantity sets ●Delivery date Month/Day | Date of issue / /

Slip No. | Order No. | Company

Dept./Name

Purchase Order No.

Model No.

TVG1M- ☐☐☐ **3** ☐☐ **-** ☐☐ **-HP1**

❶ Switching position ❷ Piping direction ❸ Port size ❹ Voltage ❺ Reduced wiring connection ❻ Station No. ❼ Option

When filling out, select the model number from the block component configuration (P. 32 to 33 and 80 to 81).

Page	Code	Model No.	1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Qty
																Installation position																													
P. 34/82	[D side]Wiring block *1	TVG1P-T☐☐-☐																																										
P. 36/84	Valve block with solenoid valve	TVG1P-☐☐☐-☐-HP1																																										
		TVG1P-☐☐☐-☐-HP1																																										
		TVG1P-☐☐☐-☐-HP1																																										
		TVG1P-☐☐☐-☐-HP1																																										
		TVG1P-☐☐☐-☐-HP1																																										
		TVG1P-☐☐☐-☐-HP1																																										
		TVG1P-☐☐☐-☐-HP1																																										
		TVG1P-☐☐☐-☐-HP1																																										
P. 36/84	Valve block with blanking plate Spacer cannot be selected.	TVG1P-Z☐☐																																										
		TVG1P-Z☐☐																																										
		TVG1P-Z☐☐																																										
48 to 52 96-99	Spacer Only one type can be selected for one station.	TVG1P-P-☐																																										
		TVG1P-R-☐																																										
		TVG1P-PC-☐ *2																																										
		TVG1P-SR-☐ *3																																										
		TVG1P-IS																																										
P. 46/94	Intermediate supply/exhaust block	TVG1P-Q☐☐☐-☐-☐																																										
		TVG1P-Q☐☐-☐-☐																																										
P. 45/93	[U side]End block *1	TVG1P-E☐-☐☐-☐																																										

*1 : If KZ is selected, select KZ for both U side and D side. Also, select Z or KZ for the intermediate supply/exhaust block.
*2 : Cannot be selected for ❷ Direct piping.
*3 : For ❷ Direct piping, only the P port pressure regulation specification can be selected.

P. 54	Mounting rail	$L_5=$ ☐

* Enter value in multiples of 12.5.
(How to calculate length, see P. 189)

Included parts	Blank plug		Silencer	Tag plate (Included) *4
	PG-P2-B	GWP4-B	SLW-H6	
	GWP6-B	GWP8-B	SLW-H8	

Specify required quantity.
*4 : ❷Cannot be selected for direct piping.

Waterproof cap	Waterproof plug	Tube removal tool
TVGP-XSZ-11	TVGP-XSZ-12	

TVG2M (Reduced wiring) Block manifold specification sheet

Model No.

TVG2M-〔　〕〔　〕〔　〕〔　〕**-**〔　〕**-HP1**

❶ Switching position　❷ Piping direction　❸ Port size　❹ Voltage　❺ Reduced wiring connection　❻ Station No.　❼ Option

When filling out, select the model number from the block component configuration (P. 32 to 33 and 80 to 81).

Page	Code		Model No.	1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Qty
																																													Installation position
P. 34/82	[D side]Wiring block	*1	TVG2P-T〔　〕-〔　〕																																										
			TVG2P-〔　〕-HP1																																										
			TVG2P-〔　〕-HP1																																										
			TVG2P-〔　〕-HP1																																										
P. 38/86	Valve block with solenoid valve		TVG2P-〔　〕-HP1																																										
			TVG2P-〔　〕-HP1																																										
			TVG2P-〔　〕-HP1																																										
			TVG2P-〔　〕-HP1																																										
			TVG2P-〔　〕-HP1																																										
P. 38/86	Valve block with blanking plate Spacer cannot be selected.		TVG2P-Z〔　〕																																										
			TVG2P-Z〔　〕																																										
			TVG2P-Z〔　〕																																										
48 to 52 96-99	Spacer Only one type can be selected for one station.		TVG2P-P-〔　〕																																										
			TVG2P-R-〔　〕																																										
			TVG2P-PC-〔　〕 *2																																										
			TVG2P-SR-〔　〕 *3																																										
			TVG2P-IS																																										
P. 46/94	Intermediate supply/exhaust block		TVG2P-Q〔　〕-〔　〕-〔　〕																																										
			TVG2P-Q〔　〕-〔　〕-〔　〕																																										
P. 45/93	[U side]End block	*1	TVG2P-E〔　〕-〔　〕-〔　〕																																										

*1 : If KZ is selected, select KZ for both U side and D side. Also, select Z or KZ for the intermediate supply/exhaust block.
*2 : Cannot be selected for ❷ Direct piping.
*3 : For ❷ Direct piping, only the P port pressure regulation specification can be selected.

P. 54	Mounting rail	$L_5=$〔　〕 * Enter value in multiples of 12.5. (How to calculate length, P. 189)

Included parts	Blank plug		Silencer	Tag plate (Included) *4
	GWP4-B	GWP6-B	SLW-H8	
	GWP8-B	GWP10-B	SLW-H10	

Specify required quantity.
*4 : ❷Cannot be selected for direct piping.

Cable clamp for centralized terminal block	Cable with multi-connector	Multi-connector only	Cable with D-sub connector
TVGP-SCL-18A	TVGP-RMC-〔　〕	TVGP-RM21WTP-〔　〕	TVGP-CABLE-D0-〔　〕-〔　〕
TVGP-SCL-18B			

TVG2M (Serial transmission device station) Block manifold specification sheet

Model No.

TVG2M- [ ][ ][ ] 3 [ ] - [ ] -HP1

❶ Switching position ❷ Piping direction ❸ Port size ❹ Voltage ❺ Reduced wiring connection ❻ Station No. ❼ Option

When filling out, select the model number from the block component configuration (P. 32 to 33 and 80 to 81).

Page	Code	Model No.	1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Qty
																	Installation position																											
P. 34/82	[D side]Wiring block *1	TVG2P-T [ ][ ]-[ ]																																										
		TVG2P-[ ][ ][ ][ ]-HP1																																										
		TVG2P-[ ][ ][ ][ ]-HP1																																										
		TVG2P-[ ][ ][ ][ ]-HP1																																										
P. 38/86	Valve block with solenoid valve	TVG2P-[ ][ ][ ][ ]-HP1																																										
		TVG2P-[ ][ ][ ][ ]-HP1																																										
		TVG2P-[ ][ ][ ][ ]-HP1																																										
		TVG2P-[ ][ ][ ][ ]-HP1																																										
		TVG2P-[ ][ ][ ][ ]-HP1																																										
P. 38/86	Valve block with blanking plate Spacer cannot be selected.	TVG2P-Z [ ]																																										
		TVG2P-Z [ ]																																										
		TVG2P-Z [ ]																																										
48 to 52 96-99	Spacer Only one type can be selected for one station.	TVG2P-P-[ ]																																										
		TVG2P-R-[ ]																																										
		TVG2P-PC-[ ] *2																																										
		TVG2P-SR-[ ] *3																																										
		TVG2P-IS																																										
P. 46/94	Intermediate supply/exhaust block	TVG2P-Q [ ]-[ ]-[ ]																																										
		TVG2P-Q [ ]-[ ]-[ ]																																										
P. 45/93	[U side]End block *1	TVG2P-E [ ]-[ ]-[ ]																																										

*1 : If KZ is selected, select KZ for both U side and D side. Also, select Z or KZ for the intermediate supply/exhaust block.

*2 : Cannot be selected for ❷ Direct piping.

*3 : For ❷ Direct piping, only the P port pressure regulation specification can be selected.

P. 54	Mounting rail	$L_5 =$ [ ] * Enter value in multiples of 12.5. (How to calculate length, P. 189)

Included parts	Blank plug		Silencer	Tag plate (Included) *4
	GWP4-B	GWP6-B	SLW-H8	
	GWP8-B	GWP10-B	SLW-H10	

Specify required quantity.
*4 : ❷Cannot be selected for direct piping.

Waterproof cap	Waterproof plug
TVGP-XSZ-11	TVGP-XSZ-12

TVG1M (For remote I/O connection) Block manifold specification sheet

●Person in charge　　●Quantity sets　　●Delivery date Month Day

Date of issue　　/　　/

Slip No.　　　　　　　　　　　　　Order No.

Company

Dept./Name

Purchase Order No.

Model No.

TVG1M-　[　][　][　][　]-[　]-HP1

❶ Switching position　❷ Piping direction　❸ Port size　❹ Voltage　❺ Reduced wiring connection　❻ Station No.　❼ Option

When filling out, select the model number from the block component configuration (P. 32 to 33 and 80 to 81).

Page	Code	Model No.	1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Qty
P. 127/150	[D side]Valve interface (With supply/exhaust block) *1	TVG1P-T [ ][ ]-[ ]																																											
		TVG1P-[ ][ ][ ]-[ ]-HP1																																										
		TVG1P-[ ][ ][ ]-[ ]-HP1																																										
		TVG1P-[ ][ ][ ]-[ ]-HP1																																										
P. 36/84	Valve block with solenoid valve	TVG1P-[ ][ ][ ]-[ ]-HP1																																										
		TVG1P-[ ][ ][ ]-[ ]-HP1																																										
		TVG1P-[ ][ ][ ]-[ ]-HP1																																										
		TVG1P-[ ][ ][ ]-[ ]-HP1																																										
		TVG1P-[ ][ ][ ]-[ ]-HP1																																										
P. 36/84	Valve block with blanking plate Spacer cannot be selected.	TVG1P-Z [ ]																																										
		TVG1P-Z [ ]																																										
		TVG1P-Z [ ]																																										
P. 128 to 132 P. 152-155	Spacer Only one type can be selected for one station.	TVG1P-P-[ ]																																										
		TVG1P-R-[ ]																																										
		TVG1P-PC-[ ] *2																																										
		TVG1P-SR-[ ] *3																																										
		TVG1P-IS																																										
P. 46/94	Intermediate supply/exhaust block	TVG1P-Q [ ]-[ ]-[ ]																																										
		TVG1P-Q [ ]-[ ]-[ ]																																										
P. 45/93	[U side]End block *1	TVG1P-E [ ]-[ ]-[ ]																																										

*1 : If KZ is selected, select KZ for both U side and D side. Also, select Z or KZ for the intermediate supply/exhaust block.
*2 : Cannot be selected for ❷ Direct piping.
*3 : For ❷ Direct piping, only the P port pressure regulation specification can be selected.

Included parts	Blank plug		Silencer	Tag plate (Included) *4	Tube removal tool
	PG-P2-B	GWP4-B	SLW-H6		
	GWP6-B	GWP8-B	SLW-H8		

Specify required quantity.
*4 : ❷Cannot be selected for direct piping.

TVG2M (For remote I/O connection) Block manifold specification sheet

●Person in charge   ●Quantity sets   ●Delivery date Month Day   Date of issue / /

Slip No.	Order No.

Company

Dept./Name

Purchase Order No.

Model No.

TVG2M- ⬚ ⬚ ⬚ ⬚ - ⬚ -HP1

❶ Switching position ❷ Piping direction ❸ Port size ❹ Voltage ❺ Reduced wiring connection ❻ Station No. ❼ Option

When filling out, select the model number from the block component configuration (P. 32 to 33 and 80 to 81).

Page	Code	Model No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Qty
P. 127/150	[D side] Valve interface (with supply/exhaust block) *1	TVG2P-T⬚-⬚-⬚																																											
P. 38/86	Valve block with solenoid valve	TVG2P-⬚⬚⬚-⬚-HP1																																											
		TVG2P-⬚⬚⬚-⬚-HP1																																											
		TVG2P-⬚⬚⬚-⬚-HP1																																											
		TVG2P-⬚⬚⬚-⬚-HP1																																											
		TVG2P-⬚⬚⬚-⬚-HP1																																											
		TVG2P-⬚⬚-⬚-HP1																																											
		TVG2P-⬚⬚⬚-⬚-HP1																																											
		TVG2P-⬚⬚⬚-⬚-HP1																																											
P. 38/86	Valve block with blanking plate Spacer cannot be selected.	TVG2P-Z⬚																																											
		TVG2P-Z⬚																																											
		TVG2P-Z⬚																																											
P. 128 to 132 P. 152 to 155	Spacer Only one type can be selected for one station.	TVG2P-P-⬚																																											
		TVG2P-R-⬚																																											
		TVG2P-PC-⬚ *2																																											
		TVG2P-SR-⬚ *3																																											
		TVG2P-IS																																											
P. 46/94	Intermediate supply/exhaust block	TVG2P-Q⬚-⬚-⬚																																											
		TVG2P-Q⬚-⬚-⬚																																											
P. 45/93	[U side]End block *1	TVG2P-E⬚-⬚-⬚																																											

*1 : If KZ is selected, select KZ for both U side and D side. Also, select Z or KZ for the intermediate supply/exhaust block.
*2 : Cannot be selected for ❷ Direct piping.
*3 : For ❷ Direct piping, only the P port pressure regulation specification can be selected.

Included parts	Blank plug		Silencer	Tag plate (Included) *4
	GWP4-B	GWP6-B	SLW-H8	
	GWP8-B	GWP10-B	SLW-H10	

Specify required quantity.
*4 : ❷Cannot be selected for direct piping.

TVG1M (Reduced wiring) Block manifold specification sheet

●Person in charge　　●Quantity sets　　●Delivery date Month Day　　Date of issue　　/　　/

Slip No.	Order No.

Company

Dept./Name

Purchase Order No.

Model No.

TVG1M-▢▢▢B▢▢▢-▢▢▢-P4-HP1

❶ Switching position　❷ Piping direction　❸ Port size　❹ Voltage　❺ Reduced wiring connection　❻ Station No.　❼ Option

When filling out, select the model number from the block component configuration (P. 32 to 33).

Page	Code	Model No.	1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Qty
																Installation position																												
P. 172	[D side]Wiring block *1	TVG1P-TB-▢-▢-P4																																										
		TVG1P-▢B▢-▢-P4-HP1																																										
		TVG1P-▢B▢-▢-P4-HP1																																										
		TVG1P-▢B▢-▢-P4-HP1																																										
P. 174	Valve block with solenoid valve	TVG1P-▢B▢-▢-P4-HP1																																										
		TVG1P-▢B▢-▢-P4-HP1																																										
		TVG1P-▢B▢-▢-P4-HP1																																										
		TVG1P-▢B▢-▢-P4-HP1																																										
		TVG1P-▢B▢-▢-P4-HP1																																										
P. 174	Valve block spacer with blanking plate cannot be selected.	TVG1P-ZB▢-P4																																										
		TVG1P-ZB▢-P4																																										
		TVG1P-ZB▢-P4																																										
	*Spacer type regulator cannot be selected.	TVG1P-P-▢-P4																																										
P.184 to 187	Spacer Only one type can be selected for one station.	TVG1P-R-▢-P4																																										
		TVG1P-PC-▢-P4																																										
P. 182	Intermediate supply/exhaust block	TVG1P-Q▢-▢-▢-P4																																										
		TVG1P-Q▢-▢-▢-P4																																										
P. 181	[U side]End block *1	TVG1P-E▢-▢-▢-P4																																										

*1 : If KZ is selected, select KZ for both U side and D side. Also, select Z or KZ for the intermediate supply/exhaust block.

P. 54	Mounting rail	$L_5 =$ ▢

* Enter value in multiples of 12.5.
(How to calculate length, P. 189)

Included parts	Blank plug		Silencer	Tag plate (Included)
	PG-P2-B	GWP4-B	SLW-H6	
	GWP6-B	GWP8-B	SLW-H8	

Specify required quantity.

Cable clamp for centralized terminal block	Cable with multi-connector	Multi-connector only	Cable with D-sub connector	Tube removal tool
TVGP-SCL-18A	TVGP-RMC-▢	TVGP-RM21WTP-▢	TVGP-CABLE-D0-▢-▢	
TVGP-SCL-18B				

TVG1M (Serial transmission device station) Block manifold specification sheet

●Person in charge ●Quantity sets ●Delivery date Month Day

Date of issue / /

| Slip No. | Order No. |

Company

Dept./Name

Purchase Order No.

Model No.

TVG1M- ☐ B ☐ 3 ☐ - ☐ -P4 -HP1

❶ Switching position ❷ Piping direction ❸ Port size ❹ Voltage ❺ Reduced wiring connection ❻ Station No. ❼ Option

When filling out, select the model number from the block component configuration (P. 32 to 33).

Page	Code	Model No.	1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Qty
P. 172	[D side]Wiring block *1	TVG1P-TB-☐-☐-P4																																										
P. 174	Valve block with solenoid valve	TVG1P-☐B☐-☐-P4-HP1																																										
		TVG1P-☐B☐-☐-P4-HP1																																										
		TVG1P-☐B☐-☐-P4-HP1																																										
		TVG1P-☐B☐-☐-P4-HP1																																										
		TVG1P-☐B☐-☐-P4-HP1																																										
		TVG1P-☐B☐-☐-P4-HP1																																										
		TVG1P-☐B☐-☐-P4-HP1																																										
		TVG1P-☐B☐-☐-P4-HP1																																										
P. 174	Valve block spacer with blanking plate cannot be selected.	TVG1P-ZB☐-P4																																										
		TVG1P-ZB☐-P4																																										
		TVG1P-ZB☐-P4																																										
P. 184 to 187	*Spacer type regulator cannot be selected. Spacer Only one type can be selected for one station.	TVG1P-P-☐-P4																																										
		TVG1P-R-☐-P4																																										
		TVG1P-PC-☐-P4																																										
P. 182	Intermediate supply/exhaust block	TVG1P-Q☐-☐-☐-P4																																										
		TVG1P-Q☐-☐-☐-P4																																										
P. 181	[U side]End block *1	TVG1P-E☐-☐-☐-P4																																										

*1 : If KZ is selected, select KZ for both U side and D side. Also, select Z or KZ for the intermediate supply/exhaust block.

P. 54	Mounting rail	L_5= ☐ * Enter value in multiples of 12.5. (How to calculate length, P. 189)

Included parts	Blank plug		Silencer	Tag plate (Included)
	PG-P2-B	GWP4-B	SLW-H6	
	GWP6-B	GWP8-B	SLW-H8	

Specify required quantity.

Waterproof cap	Waterproof plug	Tube removal tool
TVGP-XSZ-11	TVGP-XSZ-12	

TVG2M (Reduced wiring) Block manifold specification sheet

●Person in charge   ●Quantity sets   ●Delivery date Month Day   Date of issue   /   /

Slip No.	Order No.

Company

Dept./Name

Purchase Order No.

Model No.

TVG2M-☐☐☐B☐☐☐☐-☐☐☐-P4-HP1

❶ Switching position ❷ Piping direction ❸ Port size ❹ Voltage ❺ Reduced wiring connection ❻ Station No. ❼ Option

When filling out, select the model number from the block component configuration (P. 32 to 33).

Page	Code	Model No.	1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Qty
P. 172	[D side]Wiring block *1	TVG2P-TB-☐-☐-P4																																											
P. 176	Valve block with solenoid valve	TVG2P-☐B☐-☐-P4-HP1																																											
		TVG2P-☐B☐-☐-P4-HP1																																											
		TVG2P-☐B☐-☐-P4-HP1																																											
		TVG2P-☐B☐-☐-P4-HP1																																											
		TVG2P-☐B☐-☐-P4-HP1																																											
		TVG2P-☐B☐-☐-P4-HP1																																											
		TVG2P-☐B☐-☐-P4-HP1																																											
		TVG2P-☐B☐-☐-P4-HP1																																											
P. 176	Valve block spacer with blanking plate cannot be selected.	TVG2P-ZB☐-P4																																											
		TVG2P-ZB☐-P4																																											
		TVG2P-ZB☐-P4																																											
P.184 to 187	*Spacer type regulator cannot be selected. Spacer Only one type can be selected for one station.	TVG2P-P-☐-P4																																											
		TVG2P-R-☐-P4																																											
		TVG2P-PC-☐-P4																																											
P. 182	Intermediate supply/exhaust block	TVG2P-Q☐-☐-☐-P4																																											
		TVG2P-Q☐-☐-☐-P4																																											
P. 181	[U side]End block *1	TVG2P-E☐-☐-☐-P4																																											

*1 : If KZ is selected, select KZ for both U side and D side. Also, select Z or KZ for the intermediate supply/exhaust block.

P. 54	Mounting rail	L_5=☐ * Enter value in multiples of 12.5. (How to calculate length, P. 189)

Included parts	Blank plug		Silencer	Tag plate (Included)
	GWP4-B	GWP6-B	SLW-H8	
	GWP8-B	GWP10-B	SLW-H10	

Specify required quantity.

Cable clamp for centralized terminal block	Cable with multi-connector	Multi-connector only	Cable with D-sub connector
TVGP-SCL-18A	TVGP-RMC-☐	TVGP-RM21WTP-☐	TVGP-CABLE-D0-☐-☐
TVGP-SCL-18B			

TVG2M (Serial transmission device station) Block manifold specification sheet

●Person in charge　　●Quantity sets　　●Delivery date Month Day　　Date of issue 　/　/

Slip No.	Order No.

Company

Dept./Name

Purchase Order No.

Model No.

TVG2M-☐☐ B ☐ 3 ☐☐ - ☐☐ -P4 -HP1

❶ Switching position ❷ Piping direction ❸ Port size ❹ Voltage ❺ Reduced wiring connection ❻ Station No. ❼ Option

When filling out, select the model number from the block component configuration (P. 32 to 33).

Page	Code	Model No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	Qty
P. 172	[D side]Wiring block　*1	TVG2P-TB-☐-☐-P4																																											
P. 176	Valve block with solenoid valve	TVG2P-☐B☐-☐-P4-HP1																																											
		TVG2P-☐B☐-☐-P4-HP1																																											
		TVG2P-☐B☐-☐-P4-HP1																																											
		TVG2P-☐B☐-☐-P4-HP1																																											
		TVG2P-☐B☐-☐-P4-HP1																																											
		TVG2P-☐B☐-☐-P4-HP1																																											
		TVG2P-☐B☐-☐-P4-HP1																																											
		TVG2P-☐B☐-☐-P4-HP1																																											
P. 176	Valve block spacer with blanking plate cannot be selected.	TVG2P-ZB☐-P4																																											
		TVG2P-ZB☐-P4																																											
		TVG2P-ZB☐-P4																																											
P. 184 to 187	*Spacer type regulator cannot be selected. Spacer Only one type can be selected for one station.	TVG2P-P-☐-P4																																											
		TVG2P-R-☐-P4																																											
		TVG2P-PC-☐-P4																																											
P. 182	Intermediate supply/exhaust block	TVG2P-Q☐-☐-☐-P4																																											
		TVG2P-Q☐-☐-☐-P4																																											
P. 181	[U side]End block　*1	TVG2P-E☐-☐-☐-P4																																											

*1 : If KZ is selected, select KZ for both U side and D side. Also, select Z or KZ for the intermediate supply/exhaust block.

P. 54	Mounting rail	L₅=☐ * Enter value in multiples of 12.5. (How to calculate length, P. 189)

Included parts	Blank plug		Silencer	Tag plate (Included)
	GWP4-B	GWP6-B	SLW-H8	
	GWP8-B	GWP10-B	SLW-H10	

Specify required quantity.

Waterproof cap	Waterproof plug
TVGP-XSZ-11	TVGP-XSZ-12

Standard system table (Base piping)

1. Centralized exhaust

Series	Solenoid valve port size	System No.	Speed controller	Cylinder piping Piping length 1 m	Centralized exhaust piping	Composite effective area (mm²)
TVG1	C4	A1	SC3W-M5-4	ø4 x ø2.5	ø8 x ø6 x 3 m	1.0
	C6	A2	SC3W-6-6	ø6 x ø4	ø8 x ø6 x 3 m	2.7
	C6	A3	SC1-8	ø6 x ø4	ø8 x ø6 x 3 m	3.8
TVG2	C6	B1	SC1-8	ø6 x ø4	ø10 x ø7.5 x 3 m	4.9
	C8	B2	SC1-8	ø8 x ø6	ø10 x ø7.5 x 3 m	7.5
	C10	B3	SC1-10	ø10 x ø7.5	ø10 x ø7.5 x 3 m	9.3

2. Atmosphere release exhaust (Built-in silencer)

Series	Solenoid valve port size	System No.	Speed controller	Cylinder piping Piping length 1 m	End supply/exhaust block	Composite effective area (mm²)
TVG1	C4	A4	SC3W-M5-4	ø4 x ø2.5		1.0
	C6	A5	SC3W-6-6	ø6 x ø4	TVG1P-EB-08CS-X	2.8
	C6	A6	SC1-8	ø6 x ø4		4.1
TVG2	C6	B4	SC1-8	ø6 x ø4		5.1
	C8	B5	SC1-8	ø8 x ø6	TVG2P-EB-10CS-X	8.2
	C10	B6	SC1-10	ø10 x ø7.5		10.8

3. Exhaust with silencer assembly

Series	Solenoid valve port size	System No.	Speed controller	Cylinder piping Piping length 1 m	Silencer	Composite effective area (mm²)
TVG1	C4	A7	SC3W-M5-4	ø4 x ø2.5		1.0
	C6	A8	SC3W-6-6	ø6 x ø4	SLW-H8	2.6
	C6	A9	SC1-8	ø6 x ø4		3.7
TVG2	C6	B7	SC1-8	ø6 x ø4		4.9
	C8	B8	SC1-8	ø8 x ø6	SLW-H10	7.4
	C10	B9	SC1-10	ø10 x ø7.5		9.2

1. Centralized exhaust

2. Atmosphere release exhaust (Built-in silencer)

3. Exhaust with silencer assembly
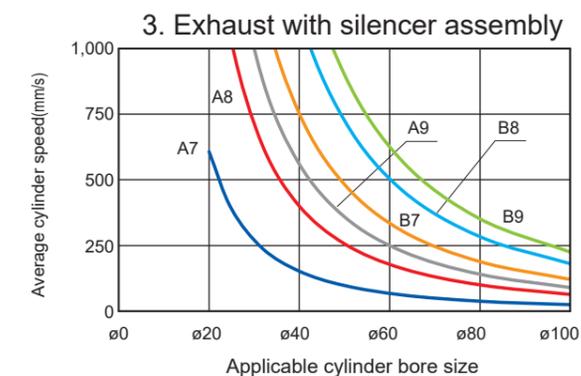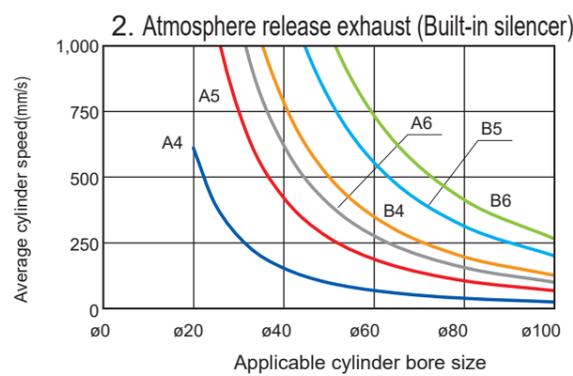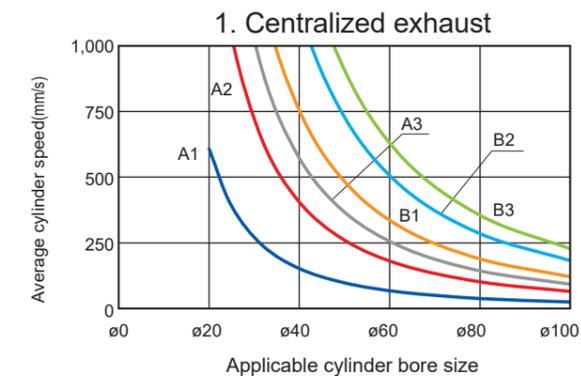
●Silencer
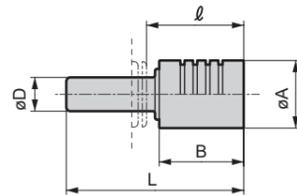
Model No.	D	L	A	B	ℓ
SLW-H8	ø8	42	16	20	23
SLW-H10	ø10	53	20	27	31.5

Use the equipment selection guide for rough selection of the optimal model.
●Control equipment selection
As conditions, assume that the cylinder tube bore size to be used and whether to operate the cylinder at relatively high speed or relatively low speed are decided.Select the value of the cylinder theoretical reference speed using the table shown below as a guide.

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

Select the appropriate standard system No. for the corresponding cylinder tube bore size and theoretical reference speed from the table in Equipment Selection Guide-1 (See P. 212).

●Theoretical reference speed:Indicates cylinder speed level, expressed by following formula. (This value approximately matches no-load speed. Speed decreases considerably when load applied.)

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

vo:Theoretical reference speed (mm/s)
A :Cylinder cross-sectional area (cm²)
S :Circuit combined effective area (exhaust side) (mm²)
D :Cylinder bore size (cm)

Shown in the graph, theoretical reference speed is the speed in the range operating at constant velocity
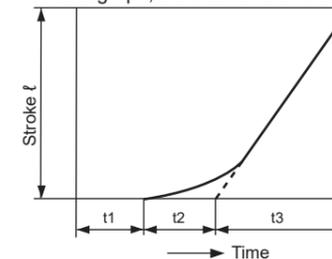
$$vo = \frac{\ell}{t3} (mm/s)$$

t1 : Time until movement starts
t2 : First-order lag time
t3 : Time operating at constant velocity
ℓ : Stroke

● Note) t1, t2 vary with load.
Can be almost neglected at no-load.

●Required flow rate:Instantaneous flow rate when cylinder operates at speed vo, shown in following table. Table shows values at P= 0.5 MPa. Required flow rate is value needed to select clean air system equipment.

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

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

●Required effective area: Combined effective area of exhaust side circuit required to operate cylinder at speed vo. (Combined effective area of solenoid valve, speed controller, silencer, piping) Conversion between effective area S and sonic conductance C is S≈ 5.0 x C.
●Appropriate standard system:Most appropriate combination of solenoid valve, speed controller, silencer, and piping diameter to operate cylinder at speed vo. Table combinations are for piping length approximately 1 m.

Expressed as follows in practical units.

$$\frac{P_2 + 0.1}{P_1 + 0.1} \quad \text{When} \leq b, \text{ choked flow}$$

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

$$\frac{P_2 + 0.1}{P_1 + 0.1} \quad \text{When} > b, \text{ subsonic flow}$$

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

Q :Air flow rate [dm³/min (ANR)], SI unit dm³(Cubic decimeter) may also be expressed as ℓ (liter). 1 dm³=1 ℓ
C :Sonic conductance [dm³/(s• bar)]
b :Critical pressure ratio [-]
P₁ :Upstream pressure [MPa]
P₂ :Downstream pressure [MPa]
t :Temperature [°C]

When calculating with effective area S, calculate C = S/5 and substitute the value C into the above formula.
For subsonic flow, substitute b = 0.5 into formula (2).

TVG Series [Equipment Selection Guide]

Cylinder bore size (mm)	Theoretical reference speed (mm/s)	Required flow rate (L/min)(ANR)	Required effective area (mm²)	Appropriate standard system No.		
				1. Centralized exhaust	2. Atmosphere release exhaust	3. Exhaust with silencer assembly
ø6	(500)	–	(0.1)	A1	A4	A7
ø10	(500)	–	(0.2)	A1	A4	A7
ø16	(500)	–	(0.5)	A1	A4	A7
ø20	250	28	0.4	A1	A4	A7
	500	56	0.8	A1	A4	A7
	750	84	1.2	A2	A5	A8
	1000	110	1.6	A2	A5	A8
ø25	250	44	0.6	A1	A4	A7
	500	88	1.3	A2	A5	A8
	750	130	1.9	A2	A5	A8
	1000	180	2.6	A2	A5	A8
ø32	250	72	1.0	A2	A5	A8
	500	140	2.1	A2	A5	A8
	750	220	3.1	A3	A6	A9
	1000	290	4.2	B1	B4	B7
ø40	250	110	1.6	A2	A5	A8
	500	220	3.3	A3	A6	A9
	750	340	4.9	B1	B4	B7
	1000	450	6.5	B2	B5	B8
ø50	250	180	2.6	A2	A5	A8
	500	350	5.1	B2	B4	B8
	750	530	7.7	B3	B5	B9
	1000	700	10.2	–	B6	–
ø63	250	280	4.1	B1	A6	B7
	500	560	8.1	B3	B5	B9
	750	830	12.2	–	–	–
	1000	1,100	16.2	–	–	–
ø80	250	450	6.5	B2	B5	B8
	500	900	13.1	–	–	–
	750	1,300	19.6	–	–	–
	1000	1,800	26.2	–	–	–
ø100	250	700	10.2	–	B6	–
	500	1,400	20.5	–	–	–
	750	2,100	30.7	–	–	–
	1000	2,800	40.9	–	–	–

* System No.P. 210.

[Effective Area]

Sonic velocity region (at 20°C)

Flow rate L/min (ANR) vs Pressure MPa
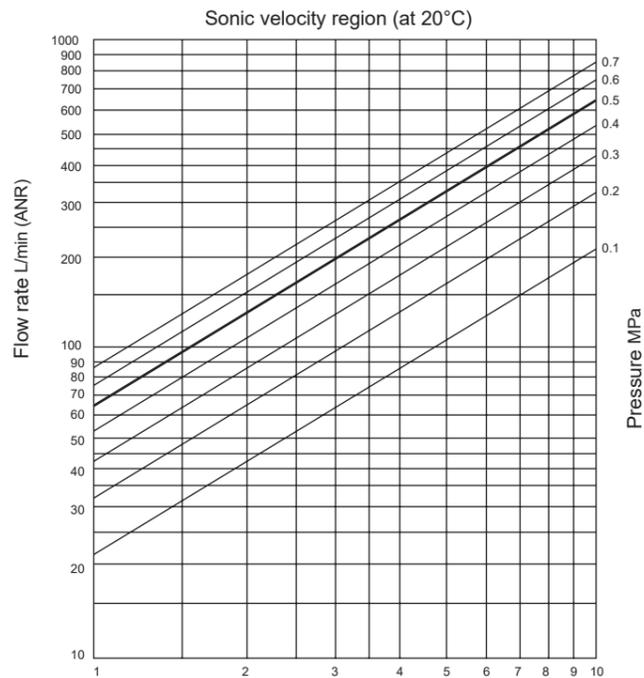
(
Effective cross-sectional area mm²
f the effective cross-sectional area value is
×10⁻¹ or ×10ⁿ, multiply the flow rate value by
the same number.
)

[Clean Air System Components]

Clean air system components

Product name	Model No.	Port size	Maximum flow rate (ℓ/min atmospheric pressure conversion)
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) Maximum flow rate : For FRL, FR, and R, the primary pressure is 0.7 MPa, the set pressure is 0.5 MPa, and the pressure drop is 0.1 MPa. For air filters, the flow rate is when the primary pressure is 0.7 MPa and the pressure drop is 0.02 MPa ; for lubricators, it is when the primary pressure is 0.5 MPa and the pressure drop is 0.03 MPa.

MEMO

Centralized terminal block type (Wiring method EA1A, EA1B, EA1C)

Precautions for wiring

[Precautions for centralized terminal block type (EA1□)]

① For the centralized terminal block type, common wiring is pre-processed internally. In the case of an independent contact PLC output unit, perform common wiring for the contact section.
② Check the correspondence between the station number and the solenoid position to prevent incorrect wiring. (According to the table below)
③ Please note that solenoid counts exceeding 20 points cannot be supported. (EA1C has a maximum of 16 points.)
④ Manifold station numbers are set in order from the left with the piping port facing the front.
⑤ Voltage drop occurs due to simultaneous energization and cable length. Please confirm that the voltage drop to the solenoid is within 10% of the rated voltage.

Internal connection of wiring method EA1□ (Max. number of solenoids: 20 points)

Manifold station number | Station 1 | Station 2 | Station 3 --- n-th station
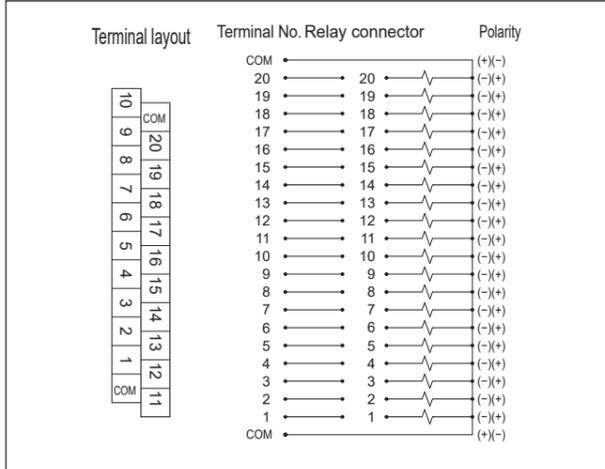
Terminal array of wiring method EA1□ (Example)

*1: The numbers in Valve No. 1a, 1b, 2a, 2b... represent the 1st station, 2nd station, and the alphabets a and b indicate the a-side solenoid and b-side solenoid. The maximum number of manifold stations varies depending on the model. Check the model specifications.
*2: When using a single solenoid with standard wiring (double wiring), the operation lamp will light up if the (Empty) part in the table below is energized, but this is not a malfunction.

Terminal No.

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

[Standard wiring (Double wiring)]

● Single solenoid For valve

(Max. 10 MF stations)

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

● Double solenoid For valve

(Max. 10 MF stations)

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

● Mix (Single/double mixed) case when

(Max. 20 solenoid points)

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

[Single solenoid, Double solenoid layout designation]

(Max. 20 MF stations)

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

(Max. 10 MF stations)

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

(Max. 20 solenoid points)

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

Multi-connector type (Wiring method FA1A, FA1B)

Precautions for wiring

[Precautions for multi-connector type (FA1□)]

① For the centralized terminal block type, common wiring is pre-processed internally. In the case of an independent contact PLC output unit, perform common wiring for the contact section.
② Check the correspondence between the station number and the solenoid position to prevent incorrect wiring. (According to the table below)
③ Please note that solenoid counts exceeding 16 points cannot be supported.
④ Manifold station numbers are set in order from the left with the piping port facing the front.
⑤ Voltage drop occurs due to simultaneous energization and cable length. Please confirm that the voltage drop to the solenoid is within 10% of the rated voltage.
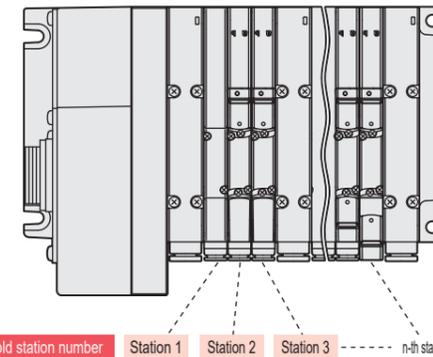
Internal wiring of wiring method FA1□ (Up to 16 solenoid points max.)

Manifold station number | Station 1 | Station 2 | Station 3 --- n-th station
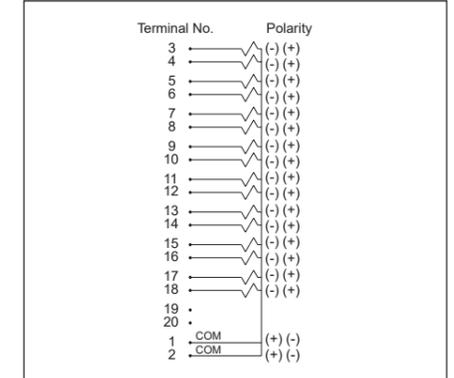
Terminal array of wiring method FA1□ (Example)

*1: The numbers in Valve No. 1a, 1b, 2a, 2b... represent the 1st station, 2nd station, and the alphabets a and b indicate the a-side solenoid and b-side solenoid. The maximum number of manifold stations varies depending on the model. Check the model specifications.
*2: When using a single solenoid with standard wiring (double wiring), the operation lamp will light up if the (Empty) part in the table below is energized, but this is not a malfunction.

Terminal No.

[Standard wiring (Double wiring)]

● For single solenoid valve

(Max. 8 MF stations)

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

● For double solenoid valve

(Max. 8 MF stations)

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

● For Mixed case (Single / Double)

(Max. 16 solenoid points)

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

[Single solenoid, Double solenoid layout designation]

(Max. 16 MF stations)

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

(Max. 8 MF stations)

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

(Max. 16 solenoid points)

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

D-sub connector type (Wiring method GA1A, GA1B, GA1C)

Precautions for wiring

[About GA1□ connector]

The connector used for wiring method GA1□ is generally called a D-sub connector and is widely used in FA and OA equipment. In particular, the 25P type is also the specified connector for the RS-232C standard adopted for PC communication functions. Note that the manifold station numbers are set in order from the left with the piping port facing the front.

Internal wiring for wiring method GA1□ (GA1A and GA1B up to 24 solenoid points, GA1C up to 16 solenoid points)

GA1A,GA1B

GA1C

| Manifold station number | Station 1 | Station 2 | Station 3 | ----- | n-th station |
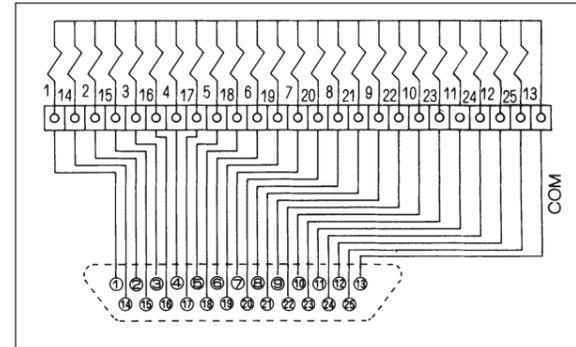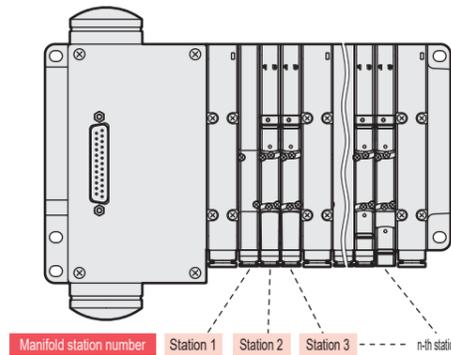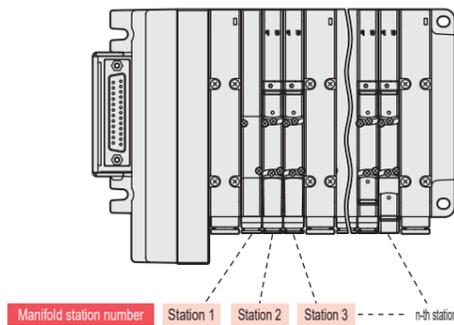
Connector pin array of wiring method GA1□ (Example)

*1:The numbers in Valve No. 1a, 1b, 2a, 2b... represent the 1st station, 2nd station, and the alphabets a and b indicate the a-side solenoid and b-side solenoid. The maximum number of manifold stations varies depending on the model. Check the model specifications.

*2:When using a single solenoid with standard wiring (double wiring), the operation lamp will light up if the (Empty) part in the table below is energized, but this is not a malfunction.

Connector pin No.

[Standard wiring (Double wiring)]

● For single solenoid valve

(Max. 12 MF stations)

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.	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	

● For double solenoid valve

(Max. 12 MF stations)

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 mixed) case/when

(Max. 24 solenoid points)

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.	(Empty)	(Empty)	3b	4b	(Empty)	(Empty)	7b	(Empty)	(Empty)	(Empty)	11b	12b	

[Single solenoid, Double solenoid layout designation]

(Max. 24 MF stations)

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	

(Max. 12 MF stations)

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	

(Max. 24 solenoid points)

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	

Serial transmission type: Wiring method

About J□□ serial transmission type

● Device station output numbers vary by manufacturer, but the correspondence between internal connector pin numbers and manifold solenoids is as shown in the table below.
● Manifold station numbers are set in order from the left with the piping port facing the front, regardless of the position of the wiring block.
● Since internal connectors are wired in order, if the number of solenoid points is less than the number of output points, empty numbers will appear in the output numbers, but the output of these empty numbers cannot be used to drive devices other than the solenoid valve manifold being used.
● The power supply is 24 VDC only.
● Firmly tighten the fixing screws of the included connector. (Appropriate tightening torque 0.3 N·m)

| Manifold station number | Station 1 | Station 2 | Station 3 | ----- | n-th station |
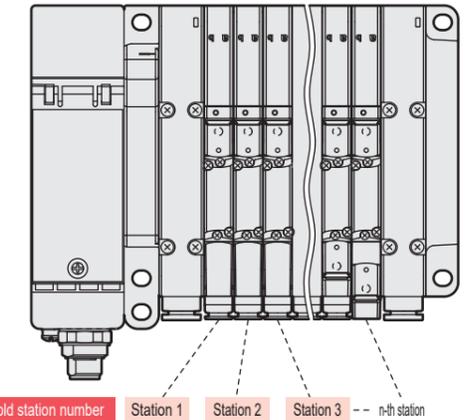
Valve No. array corresponding to solenoid output No. of wiring method J□□ (Example)

*:Valve No. 1a, 1b, 2a, 2b,... numbers represent 1st station, 2nd station, and alphabets a,b mean a-side solenoid, b-side solenoid.
Maximum manifold stations vary by model. Check model-specific specifications.

[Standard wiring (Double wiring)]

● For single solenoid valve

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

● For double solenoid valve

Solenoid Output 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
Solenoid Output 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 (single/double combination)

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

[Single/Double mixed wiring]

Solenoid Output 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
Solenoid Output 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	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)	(Empty)

Solenoid Output 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
Solenoid Output 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

Solenoid Output 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
Solenoid Output 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

* Do not use (Empty).

Technical data ❷ Precautions for wiring ; Serial transmission type

Model No.	LED display	Wiring connection method

JA1□ DeviceNet

LED display: MS, NS, PW, PW(V)

LED name	Display content
MS	Displays the status of the device station unit related to DeviceNet with LED color (green/red) and lighting status (on/flashing)
NS	Displays the status of the network related to DeviceNet with LED color (green/red) and lighting status (on/flashing)
PW	Lights up when communication power is ON. Lights up green when normal
PW(V)	Lights up when valve power is ON. Lights up green when normal (Cannot be monitored when communication power is not turned on)
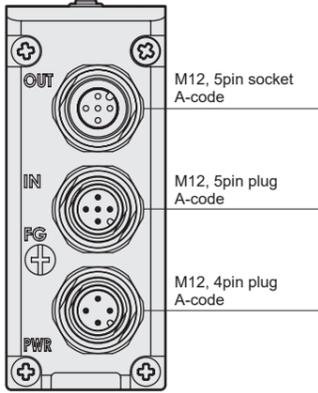
M12, 5pin socket A-code
M12, 5pin plug A-code
M12, 4pin plug A-code

Communication connector pin array

Port	Pin	Signal name	Function
IN OUT	1	Drain	Shield terminal
	2	V+	Communication power (+)
	3	V−	Communication power (−)
	4	CAN_H	Communication terminal (H)
	5	CAN_L	Communication terminal (L)

Power connector pin array

Port	Pin	Signal name	Function
PWR	1	NC	Unused
	2	Valve power	24V
	3	NC	Unused
	4	Valve power	0V

● Communication line wiring

Purchase a communication cable or connector that meets the specifications for this product.
Refer to the communication connector pin array and communication cable wiring example below for the wiring method.
Both sides cable connector : Model DCA1-5CN□□W1 (socket/plug) OMRON Corporation
One-side cable connector for IN : Model DCA1-5CN□□F1 (socket) OMRON Corporation
For OUT : Model DCA1-5CN□□H1 (plug) OMRON Corporation

● Wiring to power socket

Purchase a power cable or connector that meets the specifications for this product.
Recommended M12-loose wire type power cable : Type XS2F-D421-□8□-□Straight OMRON
Recommended communication plug and power cable : Part No.:2103 212 2305 Assembly M12 connector Harting
Wire size:AWG22-18, Suitable cable diameter:ø6-8
*□Varies by cable specification

JA2□ CC-Link Ver1.10

LED display: RUN, ERR, PW, PW(V)

LED name	Display content
L RUN	Displays data link status
L ERR	Displays data link error status
PW	Lights up when unit power is ON.
PW(V)	Lights up when valve power is ON. (Cannot be monitored when unit power is not turned on)
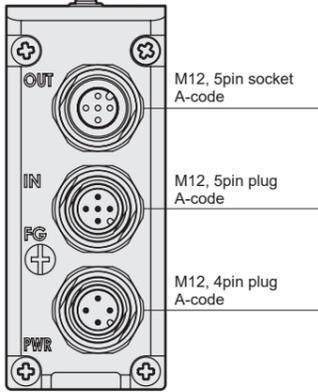
M12, 5pin socket A-code
M12, 5pin plug A-code
M12, 4pin plug A-code

Communication connector pin array

Port	Pin	Signal name	Wire insulation color/other
IN OUT	1	SLD	Ground wire (Shield)
	2	DB	White
	3	DG	Yellow
	4	DA	Blue
	5	NC	Unused

Power connector pin array

Port	Pin	Signal name	Function
PWR	1	Unit power	24V
	2	Valve power	24V
	3	Unit power	0V
	4	Valve power	0V

● Communication line wiring

Purchase a communication cable or connector that meets the specifications for this product.
For wiring method, refer to communication connector pin arrangement and communication cable wiring example below. (□Varies by cable length.)
Both sides cable connector : SAC-4P-M12MS/□□□□□-990/M12FS (socket/plug) Phoenix Contact Co. TVGP-CABLE-G-M12M12-1 (socket/plug)CKD Corporation (P. 56Refer to)
One-side cable connector for IN : SAC-4P-□□□□□□-990/M12FS (socket) Phoenix Contact Co. (For IN socket M12 connector specify 5-pole type.) TVGP-CABLE-G-M12FS-5 (socket)CKD Corporation (P. 56Refer to)
For OUT: SAC-4P-M12MS/□□□□□-990 (plug) Phoenix Contact Co.TVGP-CABLE-G-M12MS-5 (plug) CKD Corporation (P. 56Refer to)
* Terminating resistance can be set from the switch on the top of the product.For other than the switch, connect the following terminating resistance to the OUT side.
Terminating resistor M12 connector:SAC-4P-M12MS CCL TR Phoenix Contact Co.

● Wiring to power socket

Purchase a power cable or connector that meets the specifications for this product.
Recommended M12-loose wire type power cable : Type XS2F-D421-□8□-□Straight OMRON
TVGP-CABLE-M12SAC-5CKD Corporation (P. 56Refer to)
Recommended communication plug and power cable : Part No.:2103 212 2305 Assembly M12 connector Harting
Wire size:AWG22-18, Suitable cable diameter:ø6-8
*□Varies by cable specification

Technical data ❷ Precautions for wiring ; Serial transmission type

Model No.	LED display	Wiring connection method

JA3□ EtherCAT

LED display: RUN, ERR, L/A IN, L/A OUT, INFO, PW, PW(V)

LED name	Display content
RUN	Displays EtherCAT communication status with LED (green) lighting status (off/on/flashing) (Lights up green during normal communication)
ERR	Displays EtherCAT error status with LED (red) lighting status (off/on/flashing) (Off during normal communication)
L/A IN	Displays Ethernet port (IN side) status with LED (green) lighting status (off/on/high-speed flashing)
L/A OUT	Displays Ethernet port (OUT side) status with LED (green) lighting status (off/on/high-speed flashing)
INFO	Displays device station unit error status with LED (red) (Off during normal operation)
PW	Lights up when unit power is ON. Lights up green when normal
PW(V)	Lights up when valve power is ON. Lights up green when normal (Cannot be monitored when unit power is not turned on)
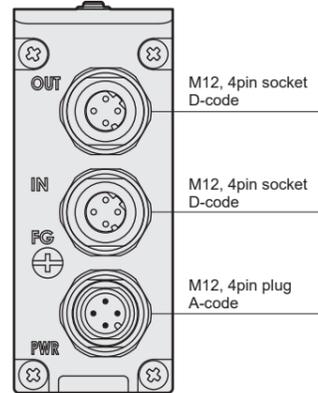
M12, 4pin socket D-code
M12, 4pin socket D-code
M12, 4pin plug A-code

Communication connector pin array

M12 pin	Signal name	Function
IN OUT 1	TD+	Transmission data, plus
2	RD+	Reception data, plus
3	TD−	Transmission data, minus
4	RD−	Reception data, minus

Power connector pin array

Port	Pin	Signal name	Function
PWR	1	Unit power	24V
	2	Valve power	24V
	3	Unit power	0V
	4	Valve power	0V

• Unit power and valve power are separate power supplies. Supply from the power connector (24 VDC).
• Connect the EtherCAT cable from the previous station to the communication connector (IN).
• The connector on the wiring side must be prepared by the customer.
• For connector and power details, please refer to P. 224.

JA4□ EtherNet/IP

LED display: MS, NS, L/A IN, L/A OUT, ST, PW(V)

LED name	Display content
MS	Displays the status of the device station unit related to EtherNet/IP with LED color (green/red) and lighting status (on/flashing)
NS	Displays the status of the network related to EtherNet/IP with LED color (green/red) and lighting status (on/flashing)
L/A IN	Displays Ethernet port (IN side) status with LED color (green/yellow)
L/A OUT	Displays Ethernet port (OUT side) status with LED color (green/yellow)
ST	Displays the status of the device station unit with LED color (green/yellow) and lighting status (on/flashing)
PW(V)	Displays the power status of the valve power. Lights up green when power is ON (Cannot be monitored when unit power is not turned on)

M12, 4pin socket D-code
M12, 4pin socket D-code
M12, 4pin plug A-code

Communication connector pin array

Port	Pin	Signal name	Function
IN OUT	1	TD+	Transmission data, plus
	2	RD+	Reception data, plus
	3	TD−	Transmission data, minus
	4	RD−	Reception data, minus

Power connector pin array

Port	Pin	Signal name	Function
PWR	1	Unit power	24V
	2	Valve power	24V
	3	Unit power	0V
	4	Valve power	0V

• Unit power and valve power are separate power supplies. Supply from the power connector (24 VDC).
• Connect the communication cable to IN or OUT.
• The connector on the wiring side must be prepared by the customer.
* For connector and power details, please refer to P. 224.

Model No.	LED display	Wiring connection method

JA5□ CC-Link IEF Basic

RUN ☐
ERR ☐
L/A IN ☐
L/A OUT ☐
INFO ☐
PW ☐
PW(V) ☐

LED name	Display content
RUN	Displays CC-Link IEF Basic communication status with LED lighting status (on/flashing)
ERR	Displays CC-Link IEF Basic communication error status with LED lighting status (on/flashing)
L/A IN	Displays Ethernet port (IN side) status with LED lighting status (on/flashing)
L/A OUT	Displays Ethernet port (OUT side) status with LED lighting status (on/flashing)
INFO	Displays the status of the device station unit with LED lighting status (on/flashing)
PW	Displays unit power supply status. Green light on power-on
PW(V)	Displays valve power supply status. Green light on power-on (cannot monitor when unit power not on)

M12, 4pin socket D-code (OUT)
M12, 4pin socket D-code (IN)
M12, 4pin plug A-code (PWR)

Communication connector pin array

Port	Pin	Signal name	Function
IN OUT	1	TD+	Transmission data, plus
	2	RD+	Reception data, plus
	3	TD−	Transmission data, minus
	4	RD−	Reception data, minus

Power connector pin array

Port	Pin	Signal name	Function
PWR	1	Unit power	24V
	2	Valve power	24V
	3	Unit power	0V
	4	Valve power	0V

• Unit power and valve power are separate power supplies. Supply from the power connector (24 VDC).
• Connect the communication cable to IN or OUT.
• The connector on the wiring side must be prepared by the customer.
* For connector and power details, please refer to P. 224.

JA6□ PROFINET

RUN ☐
ERR ☐
L/A IN ☐
L/A OUT ☐
INFO ☐
PW ☐
PW(V) ☐

LED name	Display content
RUN	Displays PROFINET communication status with LED lighting status (on/flashing)
ERR	Displays PROFINET communication error status with LED lighting status (on/flashing)
L/A IN	Displays Ethernet port (IN side) status with LED lighting status (on/flashing)
L/A OUT	Displays Ethernet port (OUT side) status with LED lighting status (on/flashing)
INFO	Displays the status of the device station unit with LED lighting status (on/flashing)
PW	Displays unit power supply status. Green light on power-on
PW(V)	Displays valve power supply status. Green light on power-on (cannot monitor when unit power not on)

M12, 4pin socket D-code (OUT)
M12, 4pin socket D-code (IN)
M12, 4pin plug A-code (PWR)

Communication connector pin array

Port	Pin	Signal name	Function
IN OUT	1	TD+	Transmission data, plus
	2	RD+	Reception data, plus
	3	TD−	Transmission data, minus
	4	RD−	Reception data, minus

Power connector pin array

Port	Pin	Signal name	Function
PWR	1	Unit power	24V
	2	Valve power	24V
	3	Unit power	0V
	4	Valve power	0V

• Unit power and valve power are separate power supplies. Supply from the power connector (24 VDC).
• Connect the communication cable to IN or OUT.
• The connector on the wiring side must be prepared by the customer.
* For connector and power details, please refer to P. 224.

Model No.	LED display	Wiring connection method

CC-Link IE Field — JA7□ CC-Link IE Field

L ERR ☐
D Link ☐
RUN/ERR ☐
INFO ☐
L/A OUT ☐
L/A IN ☐
PW ☐
PW(V) ☐

LED name	Display content
L ERR	Displays CC-Link IE Field communication port error status with LED (red) lighting status (Off during normal communication)
D Link	Displays CC-Link IE Field data link communication status with LED (green) lighting status (On during normal communication)
RUN/ERR	RUN:Displays product operation status with LED (green) lighting status ERR:Displays product operation error status with LED (red) lighting status
INFO	Displays notification status from the device station with LED (red) lighting status (Off during normal communication)
L/A OUT (P1)	Displays Ethernet port (OUT side) status with LED (green) lighting status (off/flashing/high-speed flashing)
L/A IN (P2)	Displays Ethernet port (IN side) status with LED (green) lighting status (off/flashing/high-speed flashing)
PW	Lights up when unit power is ON (Lights up green when normal)
PW(V)	Lights up when valve power is ON (Lights up green when normal) * Cannot be monitored when unit power is not turned on.

M12 8pin socket X-code
M12 4pin plug A-code

Communication connector pin array

	M12 8pin	Signal name	Function
IN OUT	1	BI_DA+	Transmission/Reception data, plus
	2	BI_DA−	Transmission/Reception data, minus
	3	BI_DB+	Transmission/Reception data, plus
	4	BI_DC+	Transmission/Reception data, plus
	5	BI_DC−	Transmission/Reception data, minus
	6	BI_DB−	Transmission/Reception data, minus
	7	BI_DD+	Transmission/Reception data, plus
	8	BI_DD−	Transmission/Reception data, minus

Power connector pin array

Port	Pin	Signal name	Function
PWR	1	Unit power	24V
	2	Valve power	24V
	3	Unit power	0V
	4	Valve power	0V

• Unit power and valve power are separate power supplies. Supply from the power connector (24 VDC).
• Connect the communication cable to IN or OUT.
• The connector on the wiring side must be prepared by the customer.
* For connector and power details, please refer to P. 225.

CC-Link IE TSN — JA8□ CC-Link IE TSN

D Link ☐
RUN/ERR ☐
INFO ☐
L/A OUT ☐
L/A IN ☐
PW ☐
PW(V) ☐

LED name	Display content
D Link	Displays CC-Link IE TSN data link communication status with LED (green) lighting status (On during normal communication)
RUN/ERR	RUN:Displays product operation status with LED (green) lighting status ERR:Displays product operation error status with LED (red) lighting status
INFO	Displays notification status from device station with LED (red) lighting status (Off during normal communication)
L/A OUT (P1)	Displays Ethernet port (OUT side) status with LED (green) lighting status (off/flashing/high-speed flashing)
L/A IN (P2)	Displays Ethernet port (IN side) status with LED (green) lighting status (off/flashing/high-speed flashing)
PW	Lights up when unit power is ON (Lights up green when normal)
PW(V)	Lights up when valve power is ON (Lights up green when normal) * Cannot be monitored when unit power is not turned on.

M12 8pin socket X-code
M12 4pin plug A-code

Communication connector pin array

	M12 8pin	Signal name	Function
IN OUT	1	BI_DA+	Transmission/Reception data, plus
	2	BI_DA−	Transmission/Reception data, minus
	3	BI_DB+	Transmission/Reception data, plus
	4	BI_DC+	Transmission/Reception data, plus
	5	BI_DC−	Transmission/Reception data, minus
	6	BI_DB−	Transmission/Reception data, minus
	7	BI_DD+	Transmission/Reception data, plus
	8	BI_DD−	Transmission/Reception data, minus

Power connector pin array

Port	Pin	Signal name	Function
PWR	1	Unit power	24V
	2	Valve power	24V
	3	Unit power	0V
	4	Valve power	0V

• Unit power and valve power are separate power supplies. Supply from the power connector (24 VDC).
• Connect the communication cable to IN or OUT.
• The connector on the wiring side must be prepared by the customer.
* For connector and power details, please refer to P. 225.

Left page

Model No.	LED display	Wiring connection method

IO-Link Class A,Class B

IO-Link Class A

M12 4pin plug A-code

Communication connector pin array

Port	Pin	Signal name	Function
NET	1	L+	Unit power:24V
	2	NC	Unused
	3	L−	Unit power:0V
	4	C/Q	IO-Link signal

Power connector pin array

M12 4pin	Signal name	Function
PWR 1	NC	Unused
2	P24	Valve power:24V
3	NC	Unused
4	N24	Valve power:0V

PW(V) ☐
COM ☐
ST ☐
INFO ☐

LED name	Display content
PW(V)	Lights up when valve power is ON (Lights up green when normal) * Cannot be monitored when unit power is not turned on.
COM	Displays unit power status and IO-Link communication status with LED (green) Unit powerOFF:Off Unit power ON (IO-Link communication not implemented):Lit Unit power ON (during IO-Link communication):Blinking
ST	Displays device station status with LED (red) Normal operation:Off Maintenance required:Flashing Hardware error (disconnection/memory error):Lights up
INFO	Off (Not used)

JA9☐

IO-Link

IO-Link Class B

M12 5pin plug A-code

Communication connector pin array

Port	Pin	Signal name	Function
NET	1	L+	Unit power:24V
	2	P24	Valve power:24V
	3	L−	Unit power:0V
	4	C/Q	IO-Link signal
	5	N24	Valve power:0V

• Unit power and valve power are separate power supplies. Supply from the power connector (24 VDC).
• The connector on the wiring side must be prepared by the customer.
* For connector and power details, please refer to P. 226.

IO-Link Wireless

M12 4pin plug A-code

Power connector pin array

Port	Pin	Signal name	Function
PWR	1	Unit power	24V
	2	Valve power	24V
	3	Unit power	0V
	4	Valve power	0V

PW ☐
PW(V) ☐
LINK ☐
ST ☐
LQ ☐

LED name	Display content
PW	Lights up when unit power is ON (Lights up green when normal)
PW(V)	Lights up when valve power is ON (Lights up green when normal) * Cannot be monitored when unit power is not turned on.
LINK	Displays communication status with LED (green) (Power OFF:Off, Power ON:Lit, Normal communication:Blinking)
ST	Displays product status with LED (red) lighting status Normal operation:Off Hardware error:Lights up Maintenance required:Flashing
LQ	Displays communication quality with lighting status Communication quality "Good":GreenLights up Communication quality "Normal":OrangeLights up Communication error:RedLights up

JB1☐

IO-Link Wireless

• Unit power and valve power are separate power supplies. Supply from the power connector (24 VDC).
• The connector on the wiring side must be prepared by the customer.
* For connector and power details, please refer to P. 227.

Right page

PLC Correspondence Table

Model No.	Communication system name		Recommended PLC Model No. *1	
	Association/Group	Network Name	Manufacturer	Master Station Model No.
JA1☐	ODVA	DeviceNet	OMRON Corporation	CJ1W-DRM21
JA2☐	CC-Link Partner Association (CLPA)	CC-Link Ver1.10	Mitsubishi Electric Corporation	RJ61BT11
JA3☐	EtherCAT Technology Group (ETG)	EtherCAT	Connect to EtherCAT compatible master	
			OMRON Corporation	NJ Series NX Series
JA4☐	ODVA	EtherNet/IP	Connect to EtherNet/IP compatible master	
			Rockwell Automation, Inc.	ControlLogix5570
			OMRON Corporation	NJ Series NX Series
JA5☐	CC-Link Partner Association (CLPA)	CC-Link IEF Basic	Connect to CC-Link IEF Basic compatible master	
			Mitsubishi Electric Corporation	R Series CPU Unit
JA6☐	PROFIBUS & PROFINET International(PI)	PROFINET	Connect to PROFINET compatible master	
			Mitsubishi Electric Corporation	RJ71PN92
			Siemens AG	S7-1200 S7-1500
JA7☐	CC-Link Partner Association (CLPA)	CC-Link IE Field	Connect to CC-Link IE Field compatible master	
			Mitsubishi Electric Corporation	RJ71GF11-T2
JA8☐	CC-Link Partner Association (CLPA)	CC-Link IE TSN	Connect to CC-Link IE TSN compatible master	
			Mitsubishi Electric Corporation	RJ71GN11-T2
JA9☐	IO-Link Community	IO-Link	Connect to IO-Link compatible master	
			OMRON Corporation	Please contact the manufacturer
			Mitsubishi Electric Corporation	Please contact the manufacturer
			Balluff GmbH	Please contact the manufacturer
			Turck Japan Corporation	Please contact the manufacturer
JB1☐	IO-Link Community	IO-Link Wireless	Connect to IO-Link Wireless compatible master CKD IO-Link Wireless equipment usable regions:Japan, EU, USA	
			Core Tigo Ltd.	Please contact Toho Technology Corp.

*1 Information as of June 2023. For details, please contact PLC manufacturer.

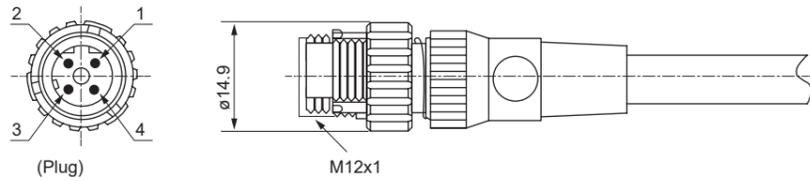## Waterproof connector

For EtherCAT, EtherNet/IP, PROFINET, CC-Link IEF Basic

●EtherCAT, EtherNet/IP, PROFINET, CC-Link IEF Basic connector

(Plug)   M12x1

Pin No.	Signal name	Function
1	TD+	Transmission data, plus
2	RD+	Reception data, plus
3	TD–	Transmission data, minus
4	RD-	Reception data, minus

Refer to the communication connector pin array and communication cable wiring example below for the wiring method.
Use a CAT5 or higher communication cable wire.

Recommended communication cable with M12-RJ45 connector
• TVGP-CABLE-M12R4-5   Straight   CKD   *For details, please refer to P. 56.
• Type XS5W-T421-□MC-K   Straight   OMRON
• No.0945 700 50□□   Straight   Harting

Recommended communication cable with M12-M12 connector
• TVGP-CABLE-M12M12-5   Straight   CKD   *For details, please refer to P. 56.

Recommended communication plug and communication cable
• No.0945 600 01□□   Cable alone   Harting
• Part No. 2103 281 1405   Assembly M12 connecto   Harting

●Power connector
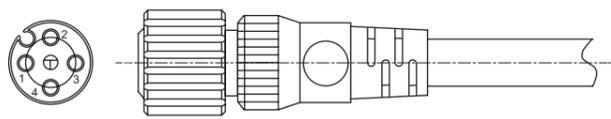
Pin No.	Signal name	Function
1	Unit power	24V
2	Valve power	24V
3	Unit power	0V
4	Valve power	0V

Recommended M12-loose wire type power cable
• Type XS2F-D421-□8□-□   Straight   OMRON
• TVGP-CABLE-M12SAC-5   Straight   CKD   *For details, please refer to P. 56.

Recommended communication plug and power cable
• Part No. 2103 212 2305   Assembly M12 connector   Harting
• Wire size:AWG22-18, Adaptive cable diameter: ø6-8

*□Varies by cable specification.

Connection method

OUT
IN
Power supply
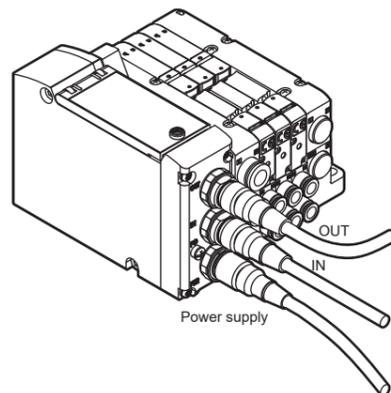
Waterproof connector

For CC-Link IE Field, CC-Link IE TSN

●CC-Link IE Field, CC-Link IE TSN connector

(Plug)   M12x1
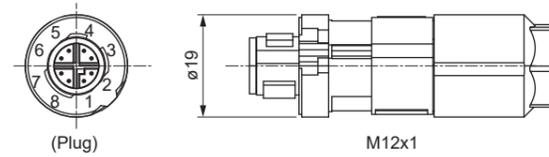
Communication connector pin arrangement example

M12 8pin		Signal name	Function
IN OUT	1	BI_DA+	Transmission/Reception data, plus
	2	BI_DA–	Transmission/Reception data, minus
	3	BI_DB+	Transmission/Reception data, plus
	4	BI_DC+	Transmission/Reception data, plus
	5	BI_DC–	Transmission/Reception data, minus
	6	BI_DB–	Transmission/Reception data, minus
	7	BI_DD+	Transmission/Reception data, plus
	8	BI_DD–	Transmission/Reception data, minus

Refer to the communication connector pin array and communication cable wiring example below for the wiring method.
Use a CAT5 or higher communication cable wire.

Recommended communication cable with M12-RJ45 connector
• SC-E5EW-□   Mitsubishi Electric System & Service Co.

Recommended communication plug (assembly type)   * Supports SPEEDCON mating method
• 1411043 (SACC-MSX-8Q0)   Phoenix Contact

●Power connector
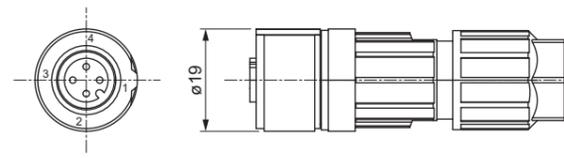
Power connector pin arrangement example

M12 4pin		Signal name	Function
PWR	1	Unit power	24V
	2	Valve power	24V
	3	Unit power	0V
	4	Valve power	0V

Recommended M12-loose wire type power cable
• TypeXS2F-D421-□8□-□   Straight   OMRON

Recommended communication plug (assembly type)   * Supports SPEEDCON mating method
• 1424655 (SACC-M12FS-4PL M)   Phoenix Contact

Connection method

OUT
IN
Power supply
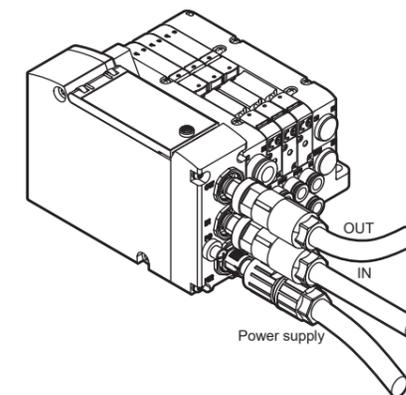
Waterproof connector

For IO-Link

●PWR),"IO-Link Class A connector (NET, PWR)",PWR)
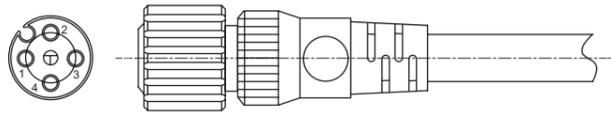
Communication connector pin arrangement example

M12 4pin		Signal name	Function
NET	1	L+	Unit power:24V
	2	NC	Unused
	3	L−	Unit power:0V
	4	C/Q	IO-Link signal

Power connector pin arrangement example

M12 4pin		Signal name	Function
PWR	1	NC	Unused
	2	P24	Valve power:24V
	3	NC	Unused
	4	N24	Valve power:0V

Refer to the communication connector pin array and communication cable wiring example below for the wiring method. Use a CAT5 or higher communication cable wire.

Recommended M12-loose wire type power cable
• Type XS2F-D421-□8□-□   Straight   OMRON

Recommended M12 connector and power cable
• Part No. 2103 212 2305   Assembly M12 connector   Harting
• Wire size:AWG22-18, Adaptive cable diameter: ø6-8

*□Varies by cable specification.

●IO-Link Class B connector (NET)

ø14.9
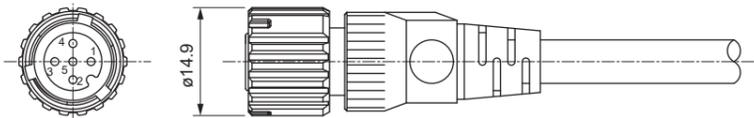
Communication connector pin arrangement example

M12 5pin		Signal name	Function
NET	1	L+	Unit power:24V
	2	P24	Valve power:24V
	3	L−	Unit power:0V
	4	C/Q	IO-Link signal
	5	N24	Valve power:0V

Recommended M12-loose wire type power cable
• TypeXS2F-D521-□8□-□   Straight   OMRON

Recommended M12 connector and power cable
• Part No. 2103 272 2505   Assembly M12 connector   Harting
• Wire size:AWG22-18, Adaptive cable diameter: ø6-8

*□Varies by cable specification.

Connection method

NET

Power supply

[Class A]

NET

[Class B]
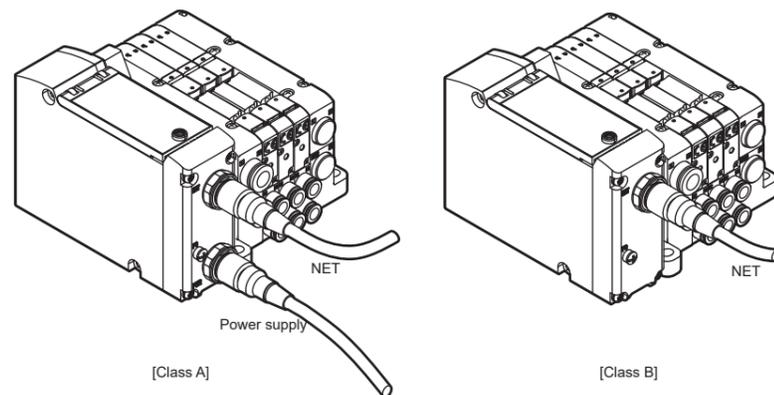
Waterproof connector

For IO-Link Wireless

●Power connector
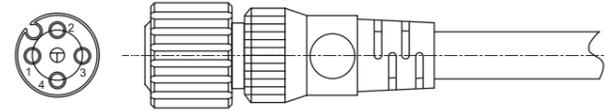
Power connector pin arrangement example

M12 4pin		Signal name	Function
PWR	1	Unit power	24V
	2	Valve power	24V
	3	Unit power	0V
	4	Valve power	0V

Recommended M12-loose wire type power cable
• Type XS2F-D421-□8□-□   Straight   OMRON

Recommended communication plug and power cable
• Part No. 2103 212 2305   Assembly M12 connector   Harting
• Wire size:AWG22-18, Adaptive cable diameter: ø6-8

*□Varies by cable specification.

Connection method

Power supply
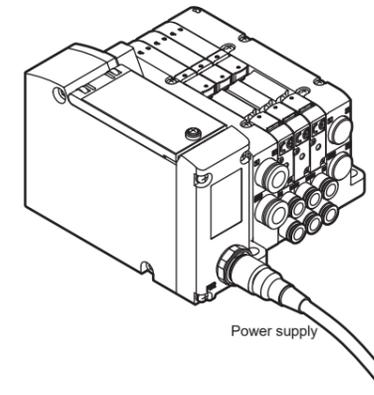
## About wiring between wiring block and valve block

Valve blocks and intermediate supply/exhaust blocks have built-in parts called dedicated wiring connectors, with structure where wiring is performed simultaneously with block manifold disassembly and assembly. No special wiring work required during disassembly and assembly. There is regularity between wiring block terminal block No. or solenoid output No. and wired valves, so confirm each wiring block wiring method and connect between valve and control device. Pay special attention when adding or removing valve blocks. Wiring circuit example when adding shown in figure below.

Wiring circuit example

The figure below shows the wiring circuit of TVG and differs from the actual specifications.

Standard wiring (Double wiring)

If one valve block is added between the 2nd and 3rd stations, the outputs assigned to terminal block No. 5 and No. 6 of the wiring block will automatically shift by two solenoids and be assigned to terminal block No. 7 and No. 8.
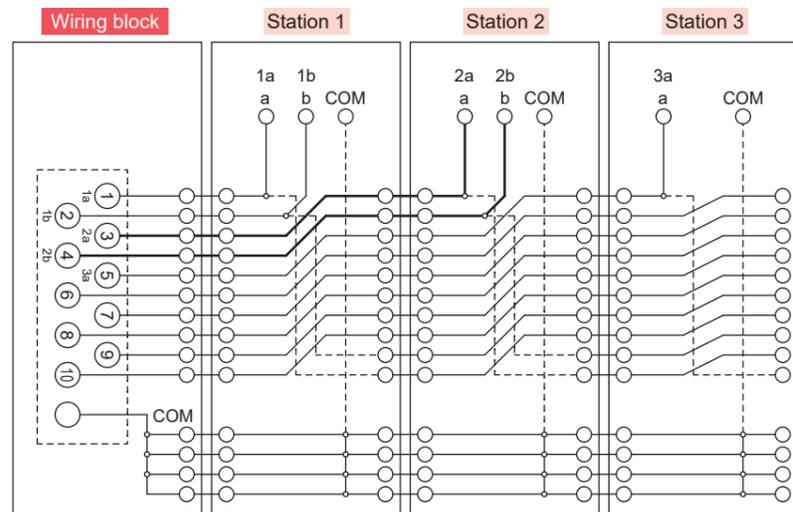
* In the case of standard wiring (double wiring), if single solenoid valves are all turned ON by a communication device station etc., the lamp on the b-side will light up because the operation lamp is built into the manifold base, but this is not an abnormality.
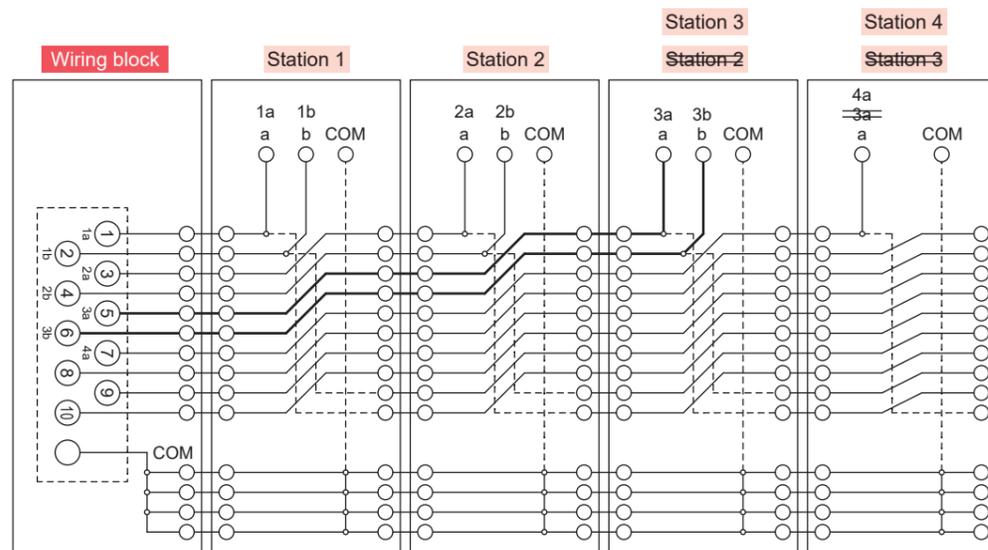
Single/Double mixed wiring

Terminal block No. is shifted similarly to double wiring case. However, shift pattern differs by solenoid valve type. Those with one solenoid (2-position single) shift by one, and those with two solenoids (2-position double/3-position) shift by two.

Block manifold exploded view

Valve mounting screw

Gasket

Hexagon socket head bolt
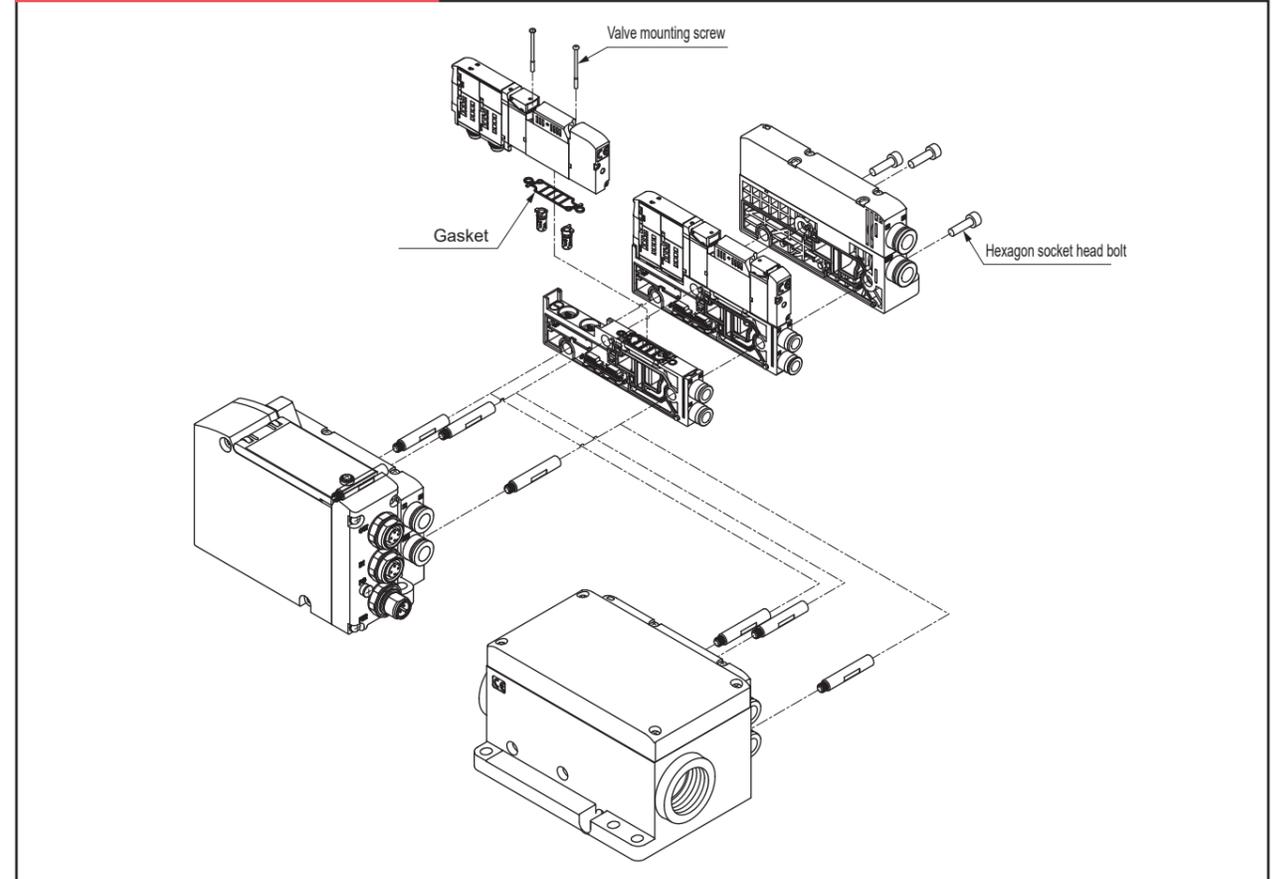
Removal of electrical cover

Electrical cover

Mounting screw

Electrical board
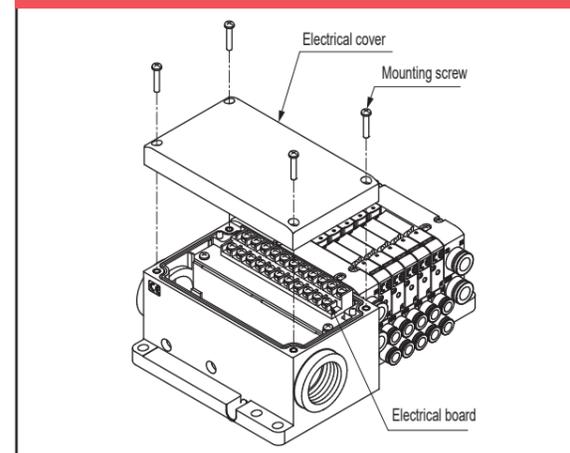
Addition of valve block

①Remove hexagon socket bolt.
②Remove all valve blocks and remove tie rod.
③Install tie rod for addition to wiring block.
* Always install expansion tie rod to wiring block. Attach the original tie rods to the right side of the additional tie rods.
④Confirm gasket is seated in groove and install valve block.
⑤Press to eliminate gaps between blocks and fasten with hexagon socket bolts. (Tightening torque:1.1-1.3 N·m)
* Be sure to attach the valve block after attaching the tie rods.
* Be very careful not to let the gasket get caught between the blocks.

Replacement of valve

Removal method
①Loosen mounting screws (2 locations).
②Remove valve from valve block.
Mounting method
Perform the reverse procedure of removal. Refer to the following for the recommended tightening torque of the mounting screws.

Recommended tightening torque for valve mounting screws

Model	Screw size	Proper tightening torque (N·m)
TVG1	M1.7	0.19 to 0.21
TVG2	M2.5	0.35 to 0.40