Common terminal block (T11R): Wiring method

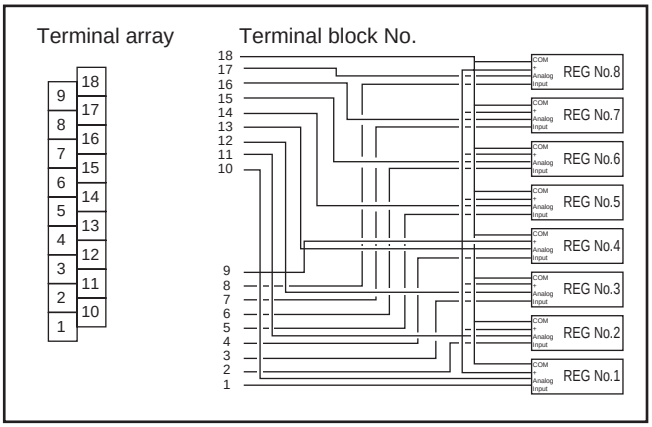
Notes on wiring

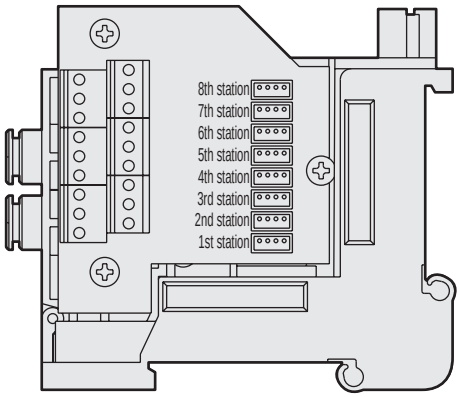
[Precautions for common terminal box (T11R)]

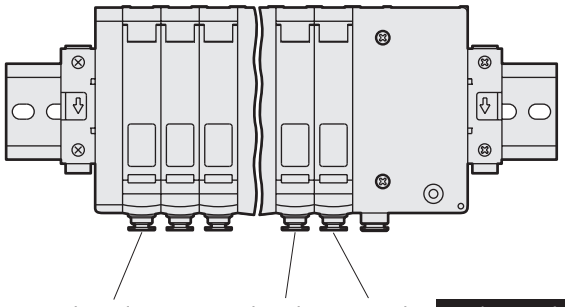
With the piping port in front, station numbers on EVT are assigned from right. If voltage drops due to simultaneous communication or cable length, 4 to 20 mA of current is recommended for input signal.

Recommended terminal block screw tightening torque 0.25 N·m

Internal wiring method of T11R (up to 8 stations for EVT)







Terminal array of wiring method T11R

* Max. station No. of EVT is 8 stations.

Terminal No.

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

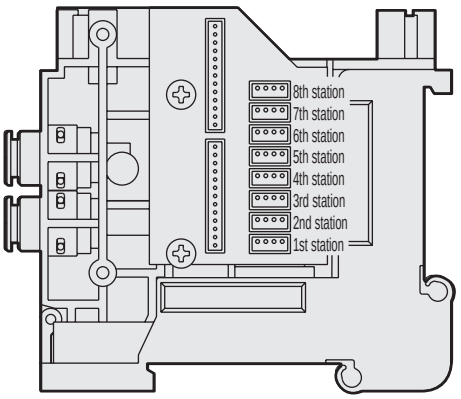
[Standard wiring]

Terminal No.	**18**	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**10**
Terminal array	COM	Analog output 8	Analog output 7	Analog output 6	Analog output 5	Analog output 4	Analog output 3	Analog output 2	Analog output 1
Terminal No.	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
Terminal array	Power supply +	Input signal 8	Input signal 7	Input signal 6	Input signal 5	Input signal 4	Input signal 3	Input signal 2	Input signal 1

D sub-connector (T30R): Wiring method

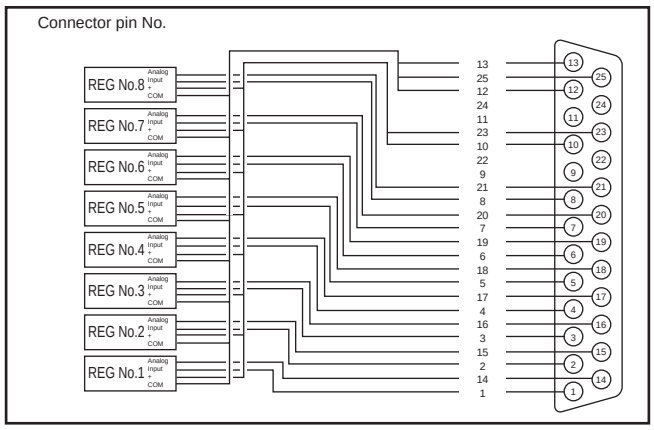
D sub-connector (T30R)

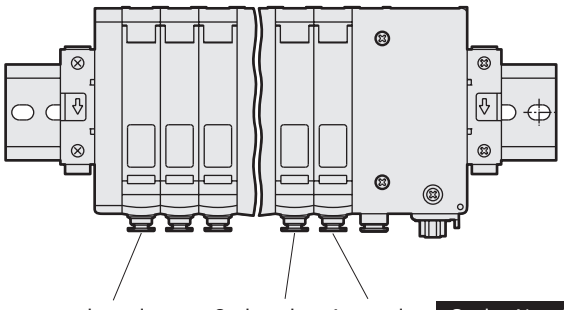
The connector used for wiring method T30R is generally called a D sub-connector and is widely used in FA and OA components. The 25P is an RS-232C Standards designated connector especially used for personal computer communication.



[Precautions for D sub-connector (T30R)]

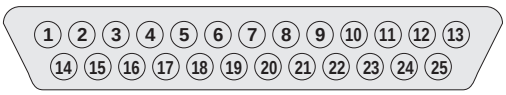
With the piping port in front, station numbers on EVT are assigned from right.
If voltage drops due to simultaneous communication or cable length, 4 to 20 mA of current is recommended for input signal.





T30R connector pin array (example)

* Max. station No. of EVT is 8 stations.

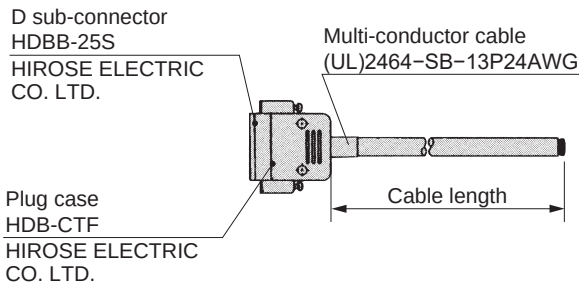


Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Pin array	Input signal 1	Input signal 2	Input signal 3	Input signal 4	Input signal 5	Input signal 6	Input signal 7	Input signal 8	(Blank)	Power supply +	(Blank)	COM	COM
Pin No.	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	
Pin array	Analog output 1	Analog output 2	Analog output 3	Analog output 4	Analog output 5	Analog output 6	Analog output 7	Analog output 8	(Blank)	Power supply +	(Blank)	COM	

How to order cable with D sub-connector

EVT - CABLE - D 0 0 - 5

D sub-connector pin No. and conductor



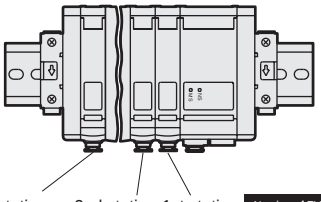
Cable length	Weight g
5 m	793

D sub-connector pin No.		1	2	3	4	5	6	7	8	9	10	11	12	13
Conductor identification	Insulator color	Yellow	Green	Gray	White	Yellow	Green	Gray	White	Yellow	Orange	Green	Orange	Orange
	Marker type	1 point	1 point	1 point	1 point	2 points	2 points	2 points	2 points	3 points	1 point	3 points	1 point	2 points
	Marker color	Black	Black	Black	Black	Black	Black	Black	Black	Black	Red	Black	Black	Black

D sub-connector pin No.		14	15	16	17	18	19	20	21	22	23	24	25	
Conductor identification	Insulator color	Yellow	Green	Gray	White	Yellow	Green	Gray	White	Yellow	Orange	Orange	Orange	
	Marker type	1 point	1 point	1 point	1 point	2 points	2 points	2 points	2 points	3 points	2 points	3 points	3 points	
	Marker color	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Black	

Serial transmission (T9*): Wiring method

[Serial transmission (T9*)]



- The slave unit's output No. differs with the manufacturer. The internal connector No. and EVT correspond as shown below.
- With the piping port in front, station numbers on EVT are assigned from right.
- Since internal connectors are wired in order, if there are fewer EVT stations than wiring and supply/exhaust blocks, some connectors are left open. Do not use these open connectors for drives other than EVTs in use.
- Do not remove the protective connectors connected to blank connectors or a malfunction may occur.
- The working power is 24 VDC dedicated.
- A slave unit for each communication system is used. Contact CKD for usable PLC models, host unit model numbers and communication system specifications. (Refer to page 653)
- To ensure network reliability, use the communication cable recommended for each communication system.
- Securely fix the enclosed connector with fixing screws. (Refer to the table at right for the proper tightening torque)
- The SUB power supply terminal is only for crossover wiring. Use the MAIN power supply terminal when connecting a single wire. Do not allow power to be applied to both the SUB and MAIN power supply terminals. Otherwise malfunction may occur.
- MAIN and SUB power terminals are connected internally. When not using the SUB power terminal, connect the enclosed connector to prevent short-circuiting.

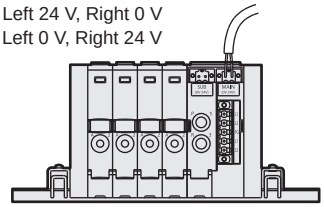
	Cable fixing screw	Connector fixing screw
Power supply connector	0.25 N·m	0.4 N·m
Communication connector	0.5 N·m	

[Wiring power cable]

Connect the power cable to MAIN when using one slave unit (wiring/supply and exhaust blocks).

* Check power polarity.

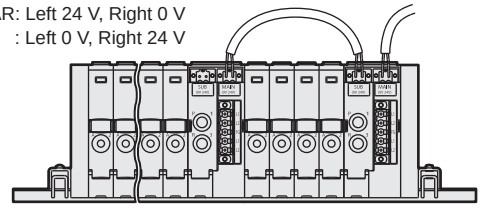
T9DAR/T9GAR: Left 24 V, Right 0 V
: Left 0 V, Right 24 V



When using more than one slave unit (wiring and supply/exhaust blocks)
Connect one power cable to the first MAIN, and then from SUB to the next MAIN.

* Check power polarity.

T9DAR/T9GAR: Left 24 V, Right 0 V
: Left 0 V, Right 24 V



* Refer to the table below for EVT station No.

Max. EVT station No.

Slave unit (wiring and supply/ exhaust blocks) model No.	Communication system name	Max. EVT station No.		
		When using 1 slave unit	When using 2 slave units	When using 3 slave units
T9DAR	DeviceNet	4 units	8 units	12 units
T9GAR	CC-Link	4 units	8 units	12 units

Up to three slave units can be connected per manifold.

Correspondence of wiring method T9* channel No. and connector No.

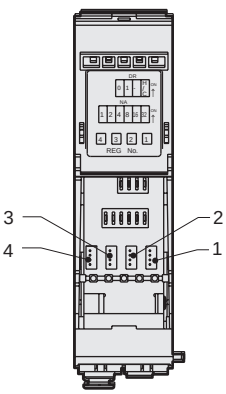
T9DAR				
Slave unit output channel No. (Pressure setting data)	0(1)	1(2)	2(3)	3(4)
Slave unit input channel No. (Pressure monitor data)	0(1)	1(2)	2(3)	3(4)
Connector No. (REG No.) (number of EVT stations)	**1**	**2**	**3**	**4**

* The channel No. may be counted from "1" depending on the master.

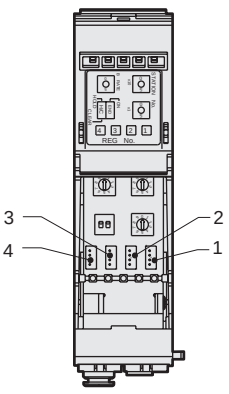
T9GAR				
Slave unit output channel No. (Pressure setting data)	1	2	3	4
Slave unit input channel No. (Pressure monitor data)	1	2	3	4
Connector No. (REG No.) (number of EVT stations)	**1**	**2**	**3**	**4**

Internal connector No.

T9DAR



T9GAR



Serial transmission slave unit specifications (Refer to the table below for the applicable PLC correspondence table)

Item		T9DAR	T9GAR
Communication subject		DeviceNet *1	CC-Link Ver1.10 *2
Communication speed		125kbps/250kbps/500kbps	156kbps/625kbps/2.5Mbps/ 5Mbps/10Mbps
Power supply voltage		24 VDC ± 10% *3 (Unit power supply/regulator power supply common terminal) Communication power supply (V+, V-): 11 to 25 VDC	24 VDC ± 10% *3 (Unit power supply/regulator power supply common terminal)
Current consumption		60 mA or less Load current is not included Communication power supply (V+, V-): 50 mA or less	80 mA or less Load current is not included
Max. output points (DA output)		4 points	
Max. input points (AD input)		4 points	
DA output	Pressure setting data	12 bit	
	Accuracy *4	±1% F.S. or less	
AD input	Pressure monitor data	12 bit	
	Accuracy *5	± 6% F.S. or less	
Occupied		Occupied output memory: 2 x n (byte) *6 Occupied input memory: 2 x n (byte) *6	Occupied unit No.: 1 station (Remote device station)

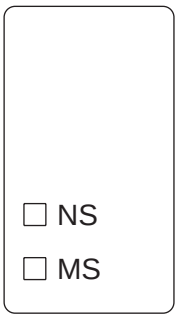
*1 Contact CKD regarding EDS file.
*2 Contact CKD regarding profile.
*3 To secure output accuracy, use safety power supply with 1% or less of ripple ratio.
*4 DA output accuracy does not include EVT accuracy.
*5 AD input accuracy includes EVT monitor accuracy.
*6 The slave unit memory occupied by the PLC is determined by the number of EVT units (n) connected when the slave unit's power is turned ON.
(Note that if no units are connected, the memory for four units is occupied)

PLC compatibility table

Model No.	Manufacturer (recommended organization)	Series	Comm system	Host unit model No.
T9DAR	ODVA	DeviceNet compatible PLCs, PCs and SBCs of various makers	DeviceNet	Connected to manufacturers DeviceNet compatible master
	OMRON Corporation	SYSMAC CS Series SYSMAC CJ Series SYSMAC CV Series SYSMAC α Series SYSMAC C200HS Series Others	DeviceNet (CompoBus/D)	CS1W-DRM21-V1 CJ1W-DRM21 CVM1-DRM21-V1 C200HW-DRM21-V1 ITNC-EI□01-DRM (PLC with master) 3G8B3-DRM21 (VME board) Other DeviceNet compatible masters
	Toyota Electric Corporation	PC3J/2J Series PC3JD PC2F/PC2FS	DeviceNet (DLNK)	THK-5398 TIC-5642 (PLC with master) TFU-5359 Other DeviceNet compatible masters
T9GAR	CLPA	CC-Link compatible PLCs, PCs and SBCs of various makers	CC-Link	Connected to manufacturers CC-Link compatible master
	Mitsubishi Electric Corporation	MELSEC A Series MELSEC QnA Series MELSEC Q Series others	CC-Link	AJ61BT11 AJ61QBT11 A1SJ61BT11 A1SJ61QBT11 QJ61BT11 A80BD-J61BT11 (for PCI bus) Other CC-Link compatible masters

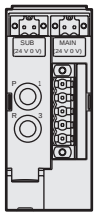
Model No.	LED display	Wiring and setting method

T9DAR



LED name	Display description
NS	Displays network status
MS	Displays slave unit status

Wiring method



(Black)	V-
(Blue)	CAN_L
(None)	Drain
(White)	CAN_H
(Red)	V+

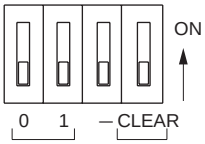
Previous station — DeviceNet cable — T branch tap — Following station

The wiring section connector is included.
Pay attention to the polarity of the power supply (left: 24 V, right: 0 V).
Unit power and regulator power use a common terminal.
The power connector (24 V, 0 V) is insulated from communication power (V+, V-).

Multi-drop method

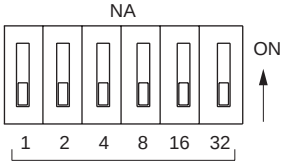
T-branch method

Setting method



Set communication speed.

Set output status if a communication error occurs.



Set the slave unit address.

Communication speed	0	1
125kbps	OFF	OFF
250kbps	ON	OFF
500kbps	OFF	ON
Setting not available	ON	ON

HOLD/CLEAR setting

◆HOLD
If a communication error occurs, the status of output is held in the state just before the error occurred. (only for set addresses)
Note: Output may not be held depending on the state of the error.

◆CLEAR
If a communication error occurs, all channels are turned OFF (0 data output to EVT). (Only for set addresses)

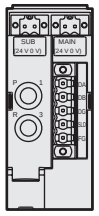
Caution

- Output to EVT is output simultaneously for all channels.
- Refer to the slave unit specifications for details on occupied memory.
- Contact CKD regarding information on the EDS file.

T9GAR

LED name	Display description
LERR	Illuminates when transmission error occurs. Turns OFF when time has lapsed. Illuminates when the station No. setting or transmission speed setting is incorrect. Blinks when station No. or transmission speed setting changes.
LRUN	Lights when receiving normal data, and turns OFF at timeover. (Lights when receiving normal data.)
RD	Lights when receiving data.
SD	Lights when transmitting data.
POWER	Lights when power is ON.

Wiring method



(Blue)	DA
(White)	DB
(Yellow)	DG
(Bare)	SLD
	FG

Previous station — CC-Link dedicated cable — Following station

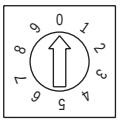
DA (Blue)
DB (White)
DG (Yellow)
SLD (Bare)
FG

* SLD and FG are short-circuited in the slave unit.

The wiring section connector is included.
Pay attention to the polarity of the power supply (left: 24 V, right: 0 V). Unit power and regulator power use a common terminal.

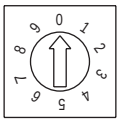
Setting method

Set the transmission speed.
0: 156 kbps 3: 5 Mbps
1: 625 kbps 4: 10 Mbps
2: 2.5 Mbps 5 and over: Not used

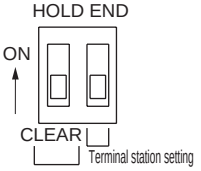


B RATE

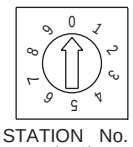
Set the slave unit's station No. (in the one's place)



STATION No. (x1)



Set output status if a communication error occurs.



STATION No. (x10)

Set the slave unit's station No. (in the ten's place)

HOLD/CLEAR setting

◆HOLD
· When the "analog output enabling signal" flag turns OFF, output of the corresponding channel retains the status from just before the flag is turned OFF.
· If a communication error occurs, the status of output of all channels is held in the state just before the error occurred. (Only for set addresses)
Note: Output may not be held depending on the state of the error.

◆CLEAR
· When the "analog output enabling signal" flag turns OFF, all channels are turned OFF (0 data output to EVT).
· If a communication error occurs, all channels are turned OFF (0 data output to EVT). (Only for set addresses)

Terminal station setting

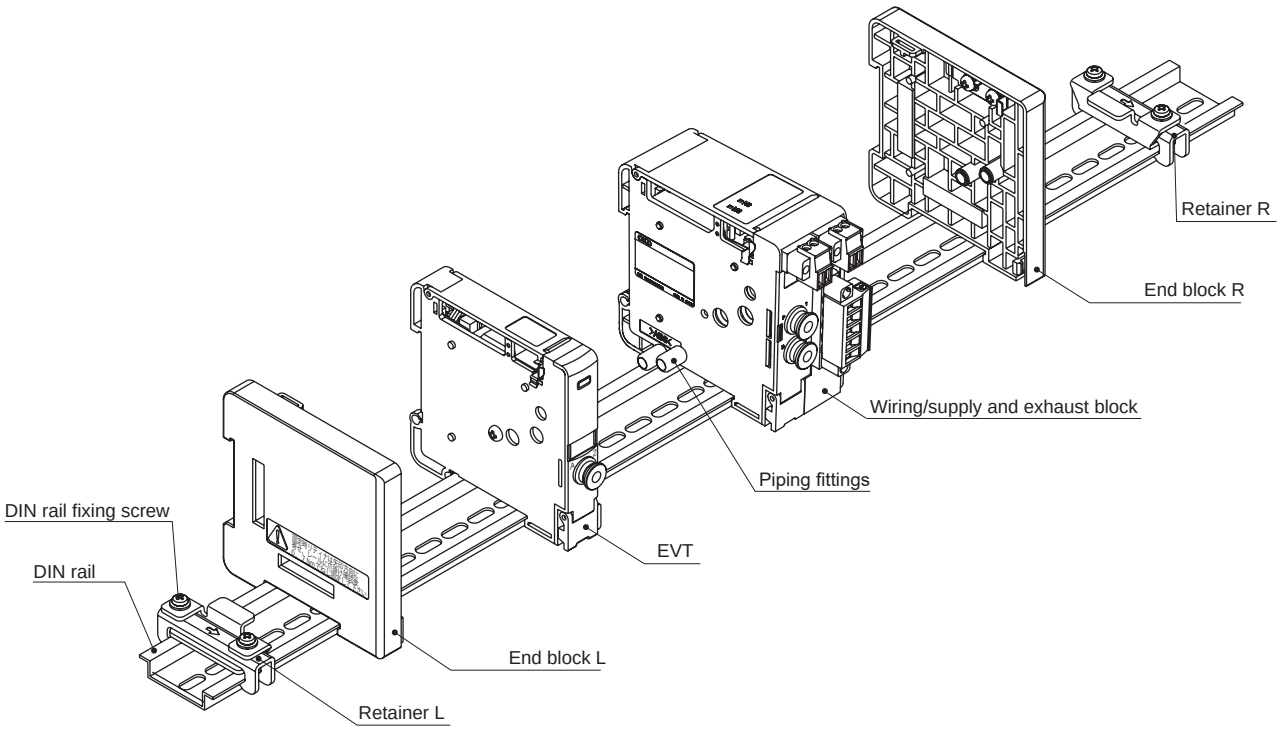
This product has a 110 Ω terminator between DA and DB communication lines. The terminal station is set by turning the terminal station setting switch ON. A terminator need not be connected to the product's connector.
[CAUTION]
Be sure to turn the terminal station setting switch OFF when this product is the terminal station and a CC-Link-dedicated cable (CC-Link dedicated high performance cable (Kuramo Electric FANC-SBH)) requiring terminal resistance other than 110 Ω is used for the communication cable. This also applies when the terminator's connection differs due to a T-branch connection. Connect a commercially available terminator or the one included with the master station to this product's connector based on connection conditions (specifications). Insulate this terminator.

Caution

- Output to EVT is output simultaneously for all channels.
- Contact CKD regarding information on PRO files.

MEMO

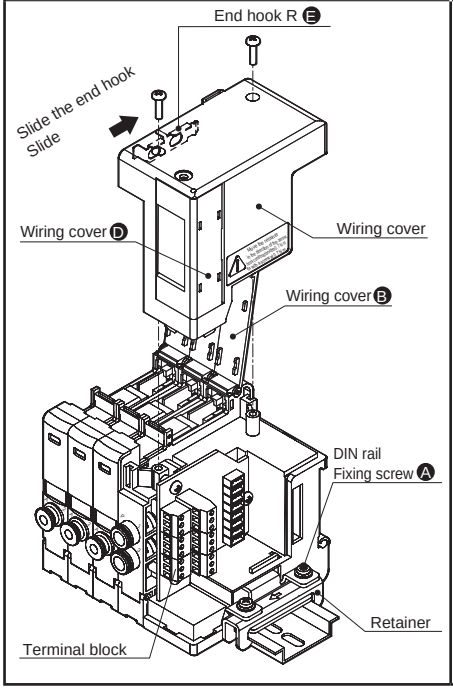
Exploded view of MEVT



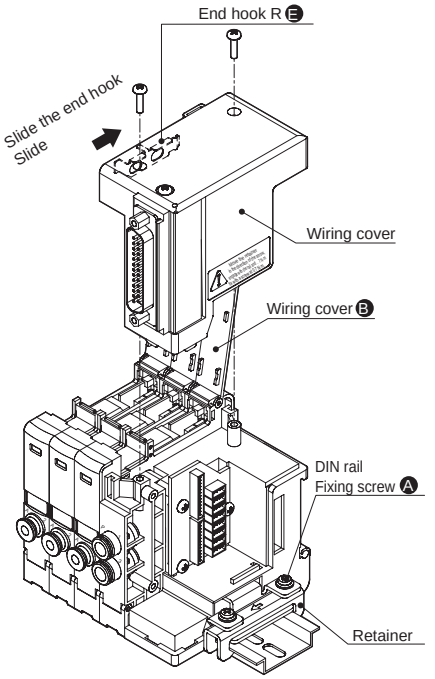
Increasing and reducing the EVT stations

1. Loosen the retainer's DIN rail Ⓐ fixing screw.
2. Open the EVT wiring cover Ⓑ.
3. When using the common terminal block or D sub-connector, slide the end hook R Ⓔ and release the hook. Next, loosen and remove screws on the wiring cover. For the serial transmission, open the wiring cover Ⓒ. (In the case of a common terminal block, check that the wiring cover Ⓓ does not catch on the terminal block.)

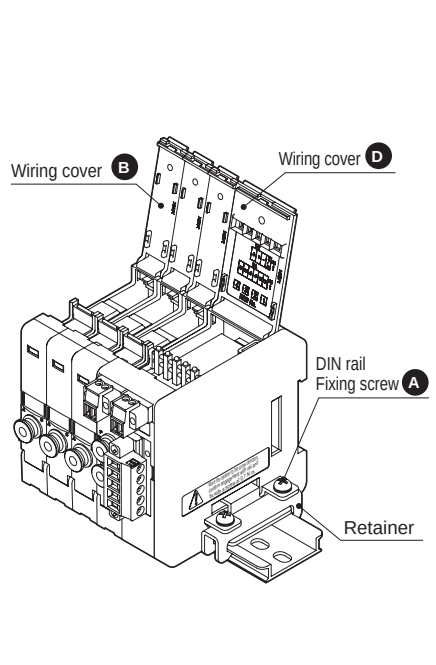
Common terminal block (T11R)



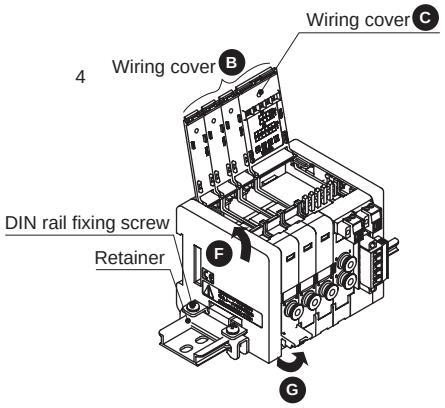
D-sub-connector (T30R)

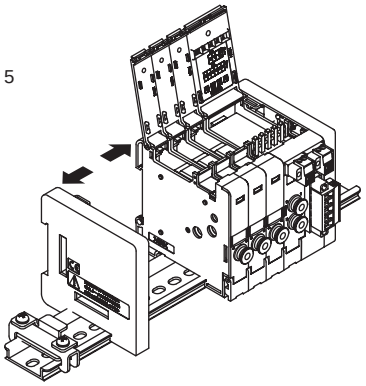


Serial transmission (T9*)

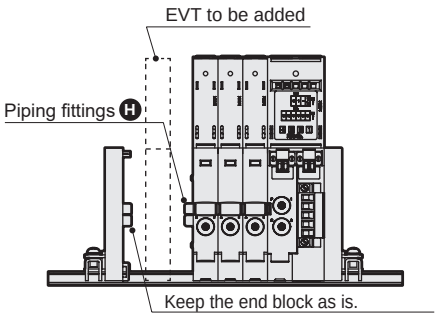


4. Remove the connecting hook spring Ⓕ and connecting hook plate Ⓖ where the manifold is to be increased, and remove the connection between the blocks.
5. Separate blocks to be expanded.

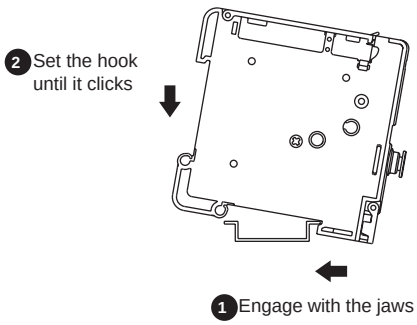




6. Insert two piping fittings Ⓗ into the input (P) and exhaust (R) ports at the separated section.
(Note: At the separated section, two piping fittings Ⓗ protrude from each side (4 fittings in all)).



7 . Mount the EVT to be added to the DIN rail.



8. Press so that there is no gap between blocks, and close the connecting hook spring Ⓕ and connecting hook plate Ⓖ to connect the blocks.
9. Insert signal wires for the expanded EVT to connectors in the wiring and supply/exhaust blocks.
10. For the serial transmission, close the wiring cover Ⓒ. When using the common terminal block or D sub-connector, fit the wiring cover on, fix it in place with screws, and return the end hook R Ⓔ to the original position. (Tightening torque: 0.35 to 0.5 N·m)
11. Close the wiring cover Ⓑ while taking care not to catch the signal wires.
12. Engage the
(1) retainer fingers with the DIN rail.
(2) Press so that there is no gap between blocks.
(3) Press the retainer in the direction of the arrow. Tighten the
(4) DIN rail fixing screw Ⓐ.
(Recommended tightening torque: 0.6 to 0.8 N·m)