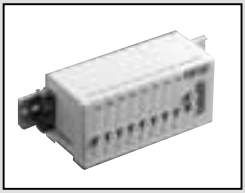
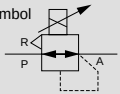


Thin electro pneumatic regulator
Reduced wiring manifold type
MEVT Series

JIS symbol



Specifications (Note 1)

Descriptions		EVT100	EVT500
Working fluid		Clean compressed air	
Max. working pressure		200kPa	0.7MPa
Min. working pressure		Control pressure + max. control pressure X 0.1	
Withstanding pressure	Inlet side	300kPa	1.05MPa
	Output side	150kPa	0.75MPa
Control pressure range		0 to 100kPa	0 to 0.5MPa
Power voltage		DC24V ±10% (ripple ratio 1 % or less, safety power supply)	
Current consumption		0.1A or less	
Input signal (input impedance)		0-10V DC (6.6k Ω) 0-5V DC (3.3k Ω) 4-20mA	
Monitor output	Note 6	1-5VDC	
Insulation resistance		100M Ω (DC500V megger) and over	
Withstand voltage		AC1500V for 1 min.	
Hysteresis	Note 2	0.4%F.S. or less	
Linearity	Note 2	±0.5% F.S. or less	
Resolution	Note 2	0.1% F.S. or less	
Repeatability	Note 2	0.3%F.S. or less	
Temperature characteristics	Zero point variation	0.15% F.S./°C or less	
	Span variation	0.07% F.S./°C or less	
Max. flow rate (ANR)	Note 3	2ℓ/min	6ℓ/min
Step response Note 4	Loadless	0.1s or less	
	15cc load	0.5s or less	
Ambient temperature		5 to 50 °C	
Fluid temperature		5 to 50 °C	
Indicator	Note 5	2 color indicator	
Lubrication		Must be oilfree	
Installation attitude		Free	
Working environment		Not subject to corrosive gas, etc.	
Main dimensions		W14 X D75 X H75	
Mass (main body)		80g	

Note 1: Above characteristics are the values where power voltage is 24V ± 0.15VDC, and measured at room temperature.
Note 2: Working pressure is to be max. control pressure X 1.1 (EVT100: 110kPa, EVT500: 0.55MPa), and the characteristics at control pressure 10 to 100% are shown. Limited to a closed circuit in the secondary side, the pressure may fluctuate if used as air blow, etc.
Note 3: The characteristics where working pressure is maximum and control pressure is maximum are shown.
Note 4: Characteristics where working pressure is maximum, and step rates
- 50% F.S.→ 100% F.S. are shown.
- 50% F.S.→ 60% F.S.
- 50% F.S.→ 40% F.S.

Note 5: Operational indicator is just for reference, but not to assure the accuracy.
Note 6: No monitor output is provided for serial transmission type (SAVENET8 points).

Manifold specifications

Descriptions		Electric / supply and exhaust block	
		T11R / T30R	T9L
Manifold type		Block manifold	
Installation method		DIN rail mount type	
Air supply / exhaust method		Common supply / common exhaust	
Max. station number		8 stations	24 stations
Port size	Output port (A)	4, 6 dia. push in joint	
	Input (P) / exhaust port (R)	4, 6 dia. push in joint	

How to order

Manifold model no .

MEVT 500 - 0 C4 - T9L0R - 8 - U - 3

EVT discrete model no.

EVT 500 - 0 C4 — E1 — 3

Model

*Always complete "Manifold specification sheet". (Page 545)

Symbol	Descriptions
A Control pressure range	
100	0 to 100kPa
500	0 to 0.5MPa
B Input signal for control	
0	0-10VDC
1	0-5VDC
2	4-20mA
C Port size (output port (A))	
C4	4 dia. push in joint
C6	6 dia. push in joint
D Electric / supply and exhaust block	
T11R	Common gland type
T30R	D sub connector type
T9L0R	Serial transmission type (SAVE NET 8 points)
E Lead wire type	
E1	3P connector (serial transmission)
E2	4P connector (common gland / D sub connector)
F Station No .	
1	1 station
to	
24	24 stations (may vary per reduced wiring specifications. Check manifold specifications on Page 526.)
G DIN rail mount direction	
U	Bottom
B	Back
H Voltage	
3	DC24V

A Control pressure range

B Input signal for control
Note 1

C Port size
Note 3
Note 4

D Electric / supply and exhaust Block
Note 1
Note 2

E Lead wire type

F Station No .

G DIN rail mount direction

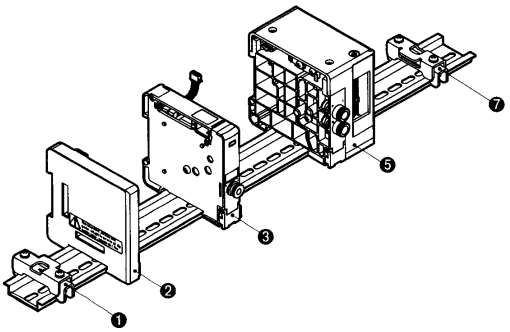
H Voltage

Note on selection guide

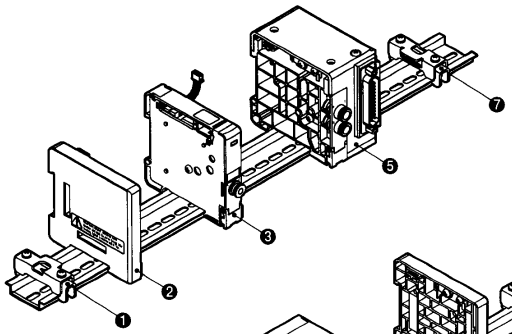
Note 1: 0-10VDC only for input control signal of serial transmission type.
Note 2: Consult with CKD for serial transmission wiring block other than SAVE NET.
Note 3: Indicate port size of input (P) / exhaust (R) at electric / supply and exhaust block section.
Note 4: A filter is integrated to input (P) / output (A) port.

MEVT component explanation and parts list

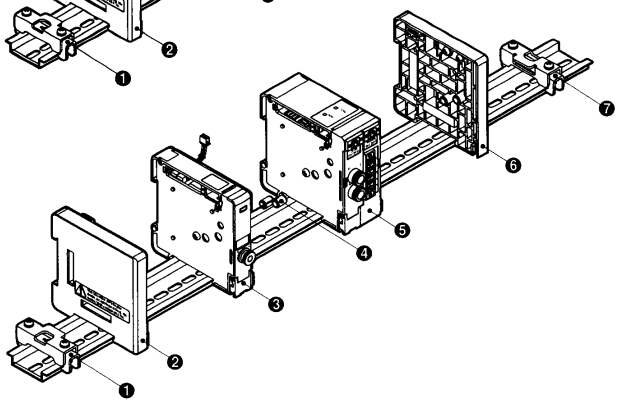
Common gland type



D sub connector type



Serial transmission type



Main parts list

No.	Block configuration parts name	Model no.	No.	Block configuration parts name	Model no.
1	Retainer L	EVT-HL	5	Electric / supply and exhaust block	EVT-T*
2	End block L	EVT-EL	6	End block R	EVT-ER
3	EVT	EVT500-0C4-E1-3	7	Retainer R	EVT-HR
4	Pipe joint	EVT-P			

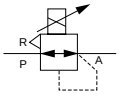
Mass

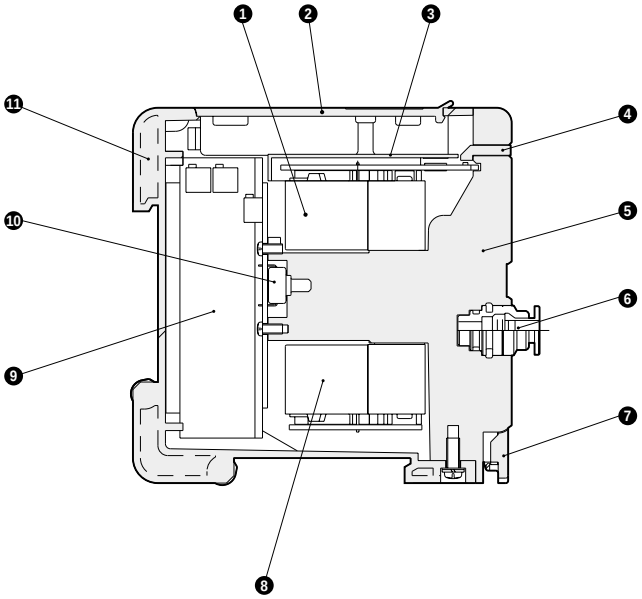
(g)

Block type		Mass	Block type		Mass
EVT	EVT-***	80	Electric / supply and exhaust block	T9L*R	115
End block	EVT-EL	30	Retainer	EVT-H*	25
	EVT-ER	30	Pipe joint	EVT-P	—

Internal structure and parts list

• EVT





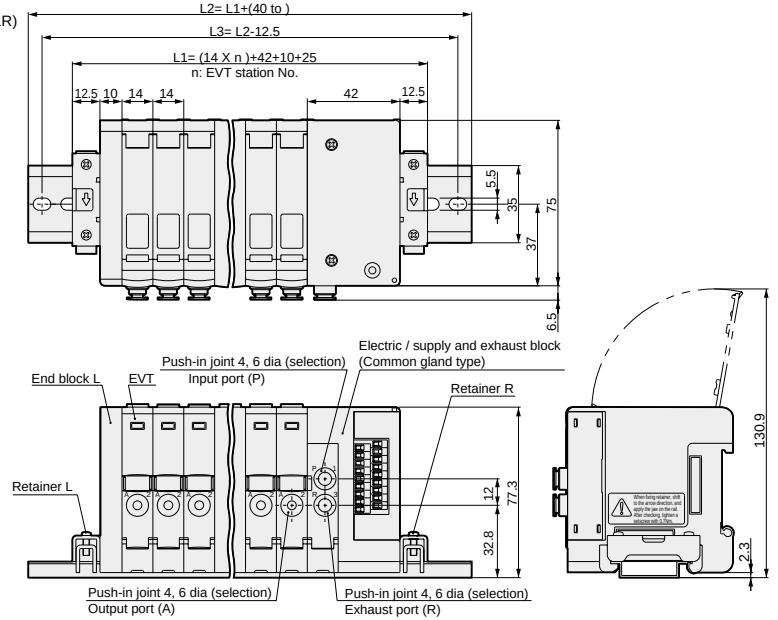
Main parts list

No.	Parts name	Material	No.	Parts name	Material
1	Solenoid valve for air supply		7	Connection hook plate	Polyamide resin
2	Wire cover	ABS resin	8	Solenoid valve for exhaust	
3	Valve cover	ABS resin	9	Control circuit board	
4	Display lens	Polycarbonate resin	10	Pressure sensor	
5	Body	Polyamide resin	11	Case	ABS resin
6	Push-in joint				

Dimensions

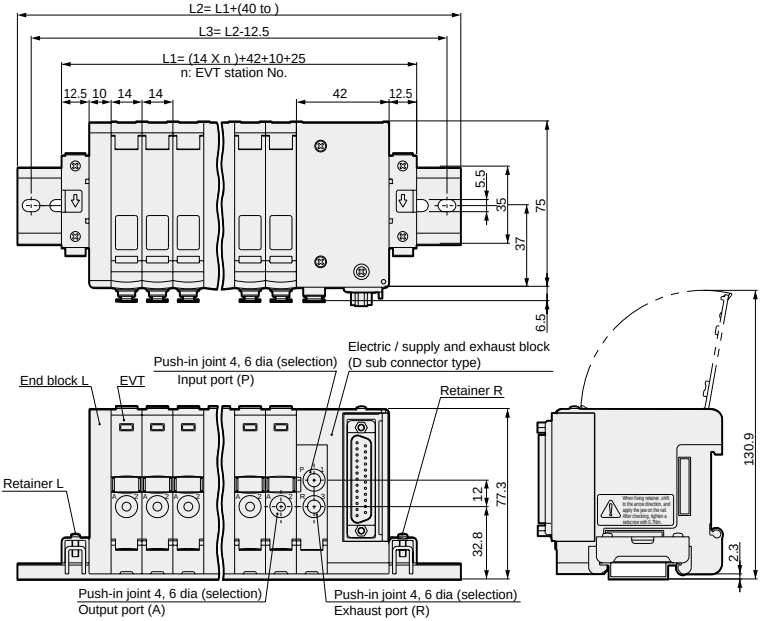
MEVT

• Common gland type (T11R)



MEVT

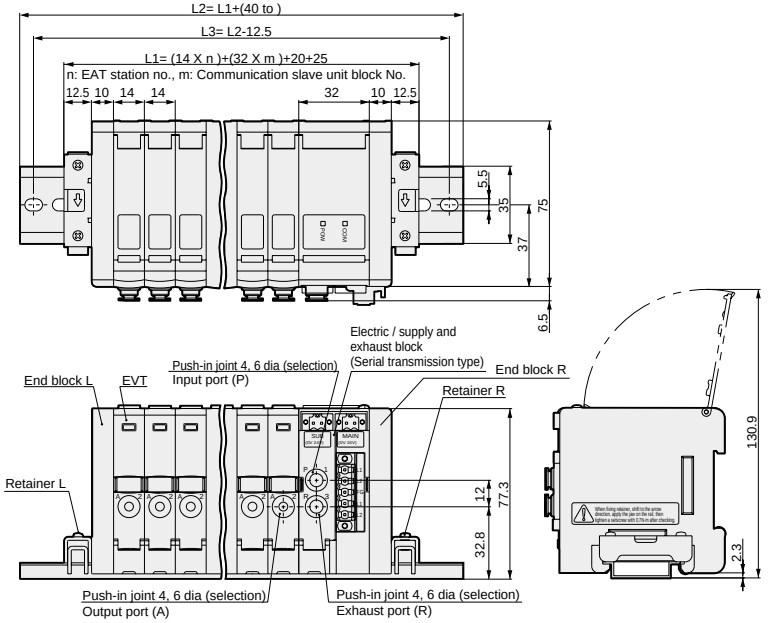
• D sub connector type (T30R)



Dimensions

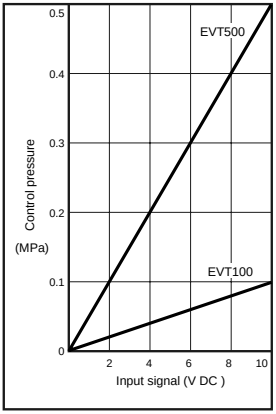
MEVT

• Serial transmission type (T9L)

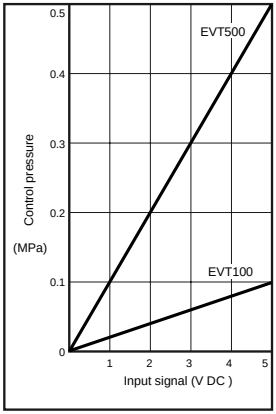


I/O characteristics

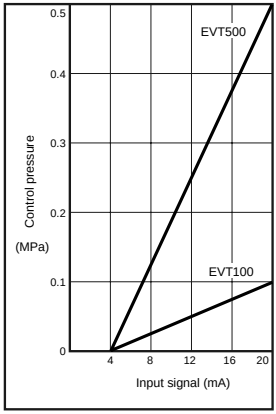
• Input signal 0-10V DC



• Input signal 0-5V DC

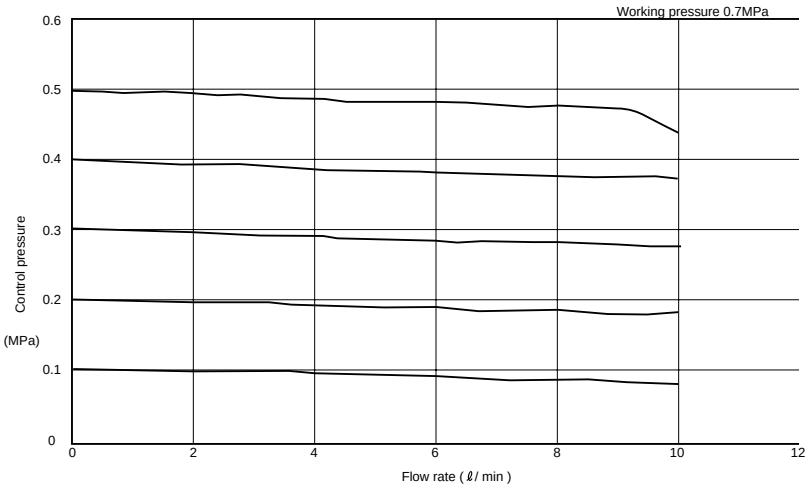


• Input signal 4-20mA



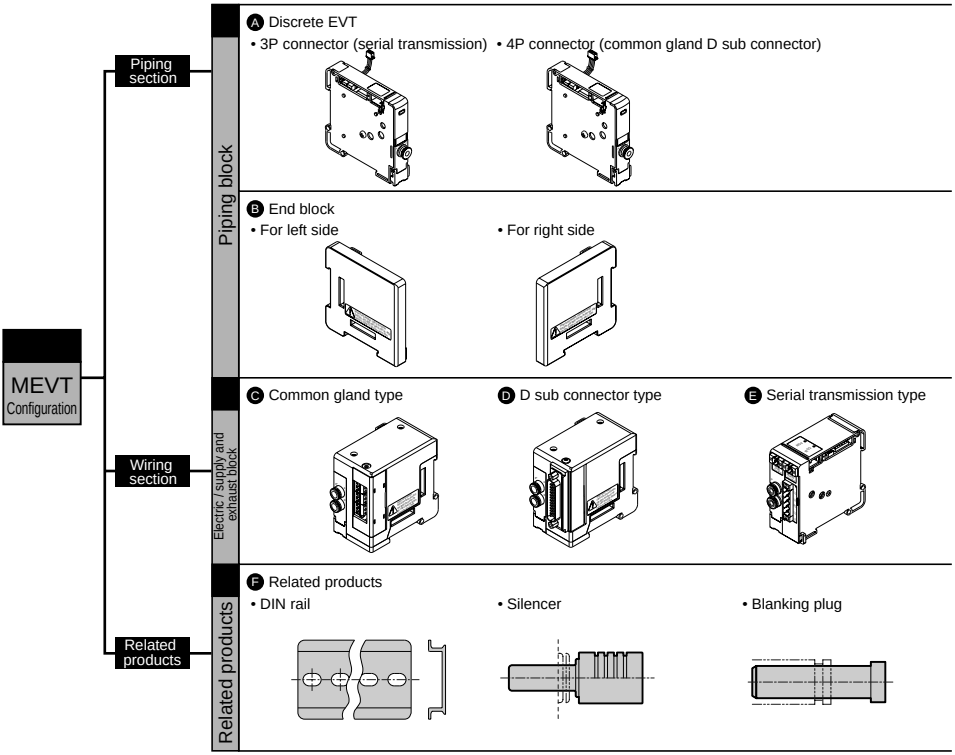
Flow characteristics

• EVT500



MEVT: Block configurations

- Discrete EVT
  - (1) Required station no. of EVT can be placed on DIN rail.
    However, the maximum station no. is limited by wiring method (Refer to Page 526.)
  - (2) Viewed from the joint, nominal station no. of EVT is assigned as 1, 2, 3 ⋯ from right.
- Electric / supply and exhaust block
  - (1) Required number can be placed onto the connecting section per block.
- End block
  - (1) For serial transmission type, install the blocks to both sides.
  - (2) If common gland or D sub connector type, install this block on the contrary side of electric / supply and exhaust block.



Piping section

A. Discrete EVT

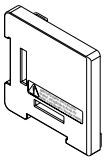
Refer to Page 526 and 527 for selection guide.

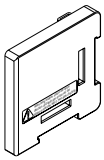
B. End block

For serial transmission type (T9L), install the blocks to both ends of manifold.
For common gland type (T11R) or D sub connector type (T30R), install the block on the contrary side of electric / supply and exhaust block.

EVT - E R
Model, Ⓐ Type, Ⓑ Installation location

Ⓐ Type		Ⓑ Installation location	
E	Common exhaust	L	For left side
		R	For right side

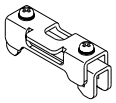


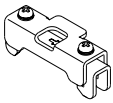


(Retainer)
Fix at both ends of manifold.

EVT - H R
Model, Ⓐ Installation location

Ⓐ Installation location	
L	For left side
R	For right side



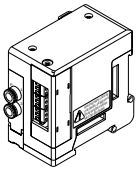


Electric / supply and exhaust block

C. Common gland type

EVT - T11R - C6
Model, Type, Ⓑ Input (P) / exhaust (R) port size

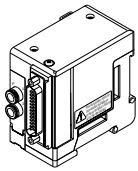
Ⓑ Input (P) / exhaust (R) port size	
C4	4 dia. push in joint
C6	6 dia. push in joint



D. D sub connector type

EVT - T30R - C6
Model, Type, Ⓑ Input (P) / exhaust (R) port size

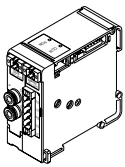
Ⓑ Input (P) / exhaust (R) port size	
C4	4 dia. push in joint
C6	6 dia. push in joint



E. Serial transmission type

EVT - T9L0R - C6
Model, Ⓐ Type, Ⓑ Input (P) / exhaust (R) port size

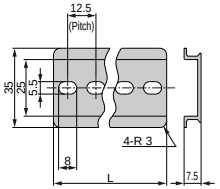
Ⓐ Type		Ⓑ Input (P) / exhaust (R) port size	
T9L0R	SAVE NET8 points	C4	4 dia. push in joint
		C6	6 dia. push in joint



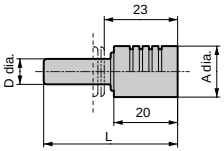
Related products DIN rail, silencer and blanking plug

• DIN rail

EVT-BAA [Length]

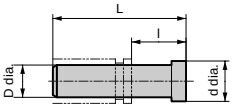


• Silencer



Model no.	D	L	A
SLW-H6	6 dia.	41	16

• Blanking plug



Model no.	D	L	l	d
GWP4-B	4 dia.	27	9	6
GWP6-B	6 dia.	29	11	8

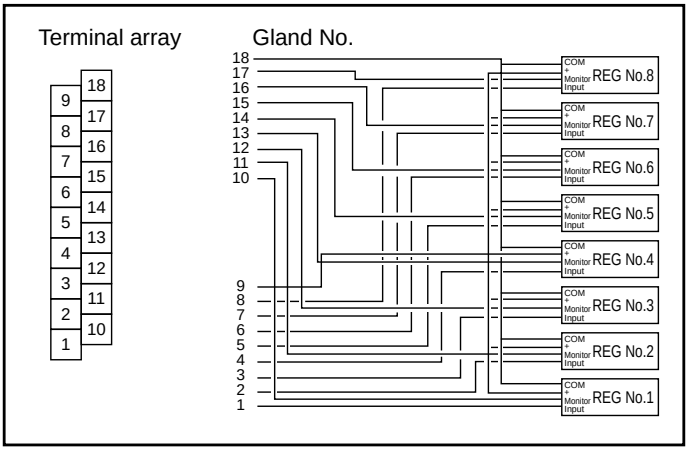
Common gland type (T11R) : Wiring method

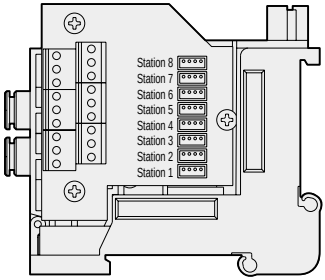
Notes on wiring

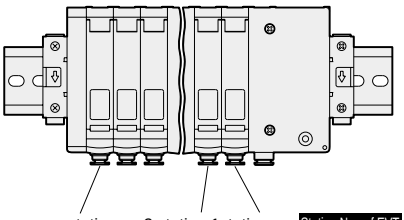
[Cautions for common gland type (T11R)]

Viewed from piping port, station no. of EVT is assigned from right. If voltage may drop depending on simultaneous communication or cable length, 4-20 mA of current type is recommended for input signal.

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







Terminal array of wiring method T11R

*Max. station number 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	Monitor output 8	Monitor output 7	Monitor output 6	Monitor output 5	Monitor output 4	Monitor output 3	Monitor output 2	Monitor 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 type (T30R) : Wiring method

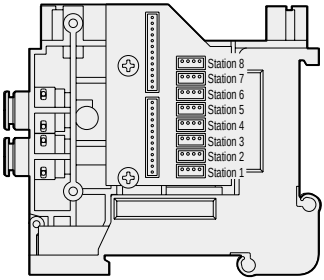
D sub connector type (T30R)

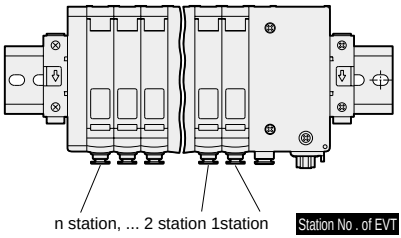
A connector used for wiring method T30R, is generally called as D sub connector and widely used in FA and OA components. Especially, 25P type complying RS-232C standards is a dedicating connector widely used in PC communication board.

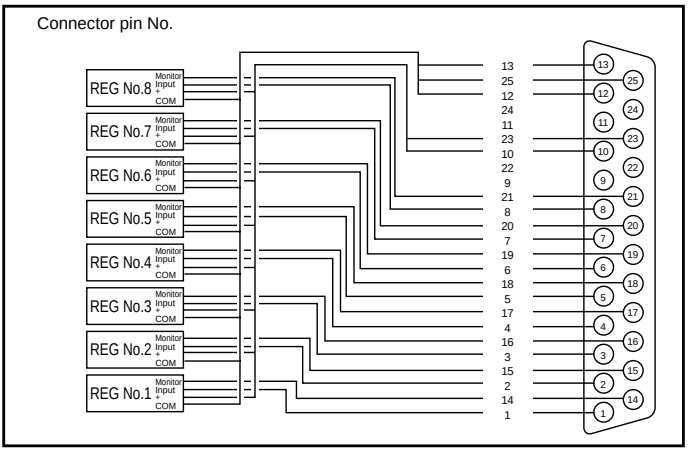
[Cautions for D sub connector type (T30R)]

Viewed from piping port, station no. of EVT is assigned from right.

If voltage may drop depending on simultaneous communication or cable length, 4-20 mA of current type is recommended for input signal.

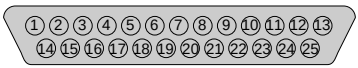






Connector pin array of wiring method T30R

*Max. station number 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	(Void)	Power supply +	(Void)	COM	COM
Pin No.	14	15	16	17	18	19	20	21	22	23	24	25	
Pin array	Monitor output 1	Monitor output 2	Monitor output 3	Monitor output 4	Monitor output 5	Monitor output 6	Monitor output 7	Monitor output 8	(Void)	Power supply +	(Void)	COM	

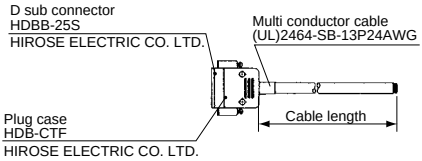
How to order D sub connecter cable

EVT - CABLE - D00 - 1

	Symbol	Model: EVT
A User interface	0	Cut only
	1	Round terminal for M3.5 screw
B Cable length	1	1m
	3	3m
	5	5m

D-sub connector terminal No. and conductor

• EVT-(CABLE)-D00-*Ⓑ



D sub connector pin No.		1	2	3	4	5	6	7	8	9	10	11	12	13
Conductor I.D.	Isolator color	Yellow	Green	Gray	White	Yellow	Green	Gray	White	Yellow	Orange	Green	Orange	Orange
	Mark 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
	Mark 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 I.D.	Isolator color	Yellow	Green	Gray	White	Yellow	Green	Gray	White	Yellow	Orange	Orange	Orange	
	Mark 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	
	Mark color	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Black	

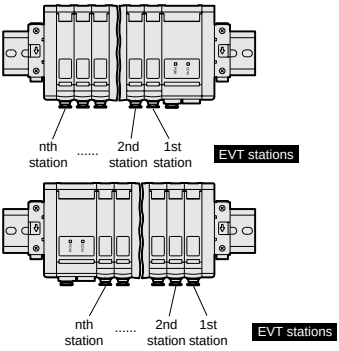
• EVT-(CABLE)-D01-*Ⓑ

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

Serial Transmission Type (T9L): Wiring method

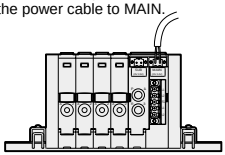
Precautions for serial transmission (T9L)

- The slave unit's output No. differs with the maker. The internal connector No. and EVT correspond as shown below.
- EVT stations are set in order from the right facing the piping port regardless of wiring block or supply/exhaust block positions.
- Since internal connectors are wired in order, if there are fewer EVT stations than total connectors, some connectors are left open. Do not use these open connectors for drives other than EVTs in use.
- The working power is 24 VDC.
- The slave for each communication system is used. Consult with CKD for compatible PC and host station models and communication system specifications. (Refer to page 541.)
- Securely fix the enclosed connector with set screws. (Recommended tightening torque: 0.3 N·m)
- The SUB power supply terminal is exclusively used as a crossover wire. When using independently, use only the MAIN power supply terminal. Do not apply power on both SUB and MAIN power supply terminals because a malfunction could occur.

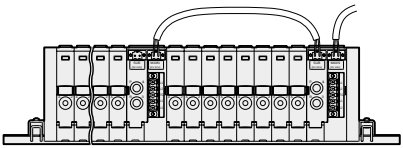


[Wiring the power cable]

When using one wiring block (when there are eight or fewer METV stations)
Connect the power cable to MAIN.



When using more than one wiring block (when there are more than eight METV stations)
Connect one power cable to the first MAIN, and then from SUB to the next MAIN.



Correspondence of wiring method T9L output No. and connector No.

* Up to eight EVT stations can be used.

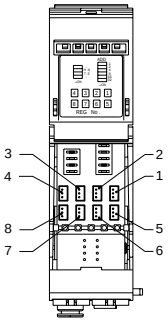
Output No.	0	1	2	3	4	5	6	7
Connector No.	1	2	3	4	5	6	7	8

Wiring method T9L connector array (example)

* Up to eight EVT stations can be used.

Connector No.	1	2	3	4	5	6	7	8
REG No.	1	2	3	4	5	6	7	8

Internal connector No.

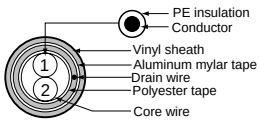


SAVE NET transmission cable

SAVE NET is used for high-speed communication, and the transmission cable is extremely important for ensuring network reliability. Use the following designated transmission cable.

Transmission distance	Maker, retailer	Transmission cable type	Contact
to 500m	CKD Co., Ltd.	CSN-CA	Contact the CKD Business Office for information.

CSN-CA sectional view

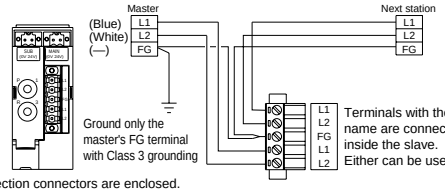
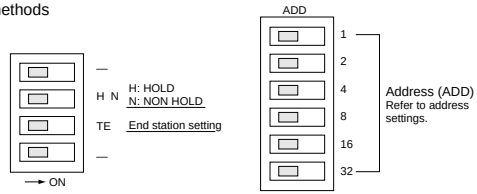


1: White
2: Blue

CSN-CA specifications

Twisted pair cable with shield (two-wire)

No. of pairs	1	Sheath material	Polyvinyl chloride
Electrostatic capacitance	40pF/m, at1kHz	Sheath color	Ivory
Conductor resistance	53Ω/km	Outer diameter	6.2mm
Impedance	100Ω	Withstand voltage	300V AC
Conductor	AWG22 0.35mm^2	Weight	3.2kg/100m

Model	LED display	Wiring method
T9L0R T9L8R	☐ COM ☐ POW	Wiring method  * Wiring section connectors are enclosed. Setting methods  HOLD/NON-HOLD setting • HOLD When a system error or line error, etc., occurs, the slave unit's state before the error is held (for set addresses only). • NON-HOLD Output of stations with the above errors is released (for set addresses only). • This is set to HOLD as the default. Terminator setting • Set the end station to the ON side. • The end station setting also functions as the switch of terminating resistance. Set only the slave unit farthest from the master unit as the end station. Note that the end station is not related to the set address. If it is not set, problems could occur.

LED name	Indicated details
COM	Turns ON when sending data
POW	Turns ON when power is ON

⚠ Precautions for serial transmission T9L

- SAVE NET sends data for one channel per scan. Several channels cannot be output at the same timing.
- Set EVT stations in order from the right as seen from the piping port.
- The power source is 24 VDC dedicated.
- Consult with CKD for the PC model compatible with the communication system, the host station model and communication system specifications. Refer to the table below.
- Securely fix the enclosed connector with the set screws. Recommended tightening torque: 0.3 N·m

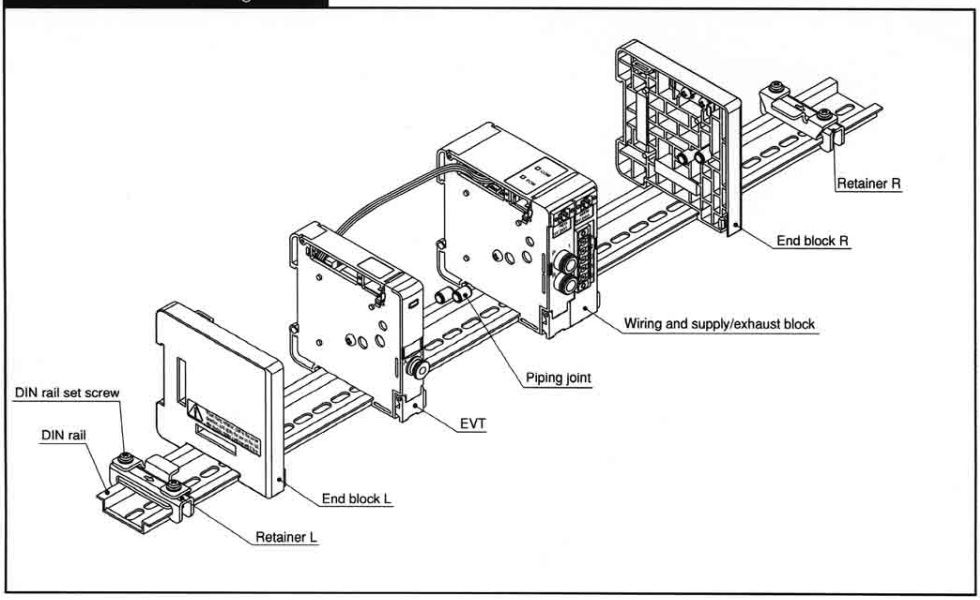
Model	Maker name (Recommended group)	Series name	Communication system name	Host station model
T9L	CKD Corporation O.N. Electronic Co., Ltd.	Compatible with personal computer and SBC Contact CKD for details.	SAVE NET	Connect to SAVE NET interfaces

Serial transmission T9L slave unit specifications

Item	Specifications
Communication target	SAVE NET
Power voltage	DC24V ±10%
Current consumption	60 mA or less Excluding load current
Number of output point	T9LOR: 8 points
Operation indication	LED (Power and communication state)

Technical Data 2) Extending the reduced wiring manifold

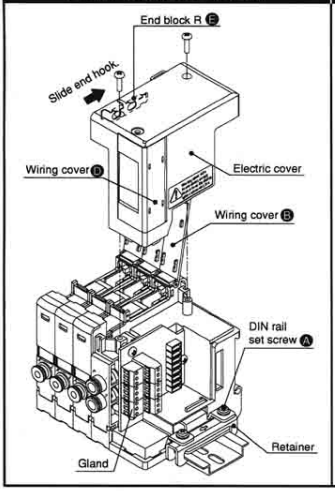
MEVT deal drawing



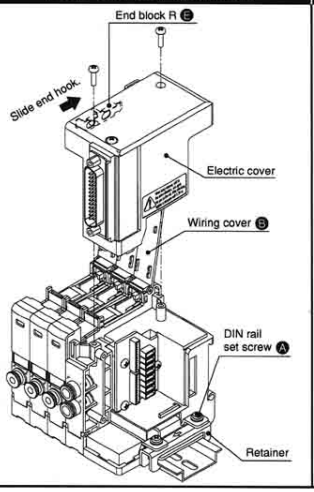
Increasing and reducing the EVT stations

1. Loosen the retainer's DIN rail set screw (A).
2. Open the EVT wiring cover (B).
3. When using the common gland or D-sub connector, loosen the electric cover screw, and remove the cover. For serial transmission, open the wiring cover (C). (For common gland type, check that the wiring cover does not catch the gland.)

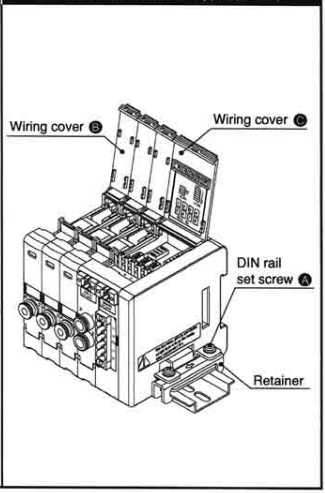
Common gland type (T11R)



D-sub connector type (T30R)

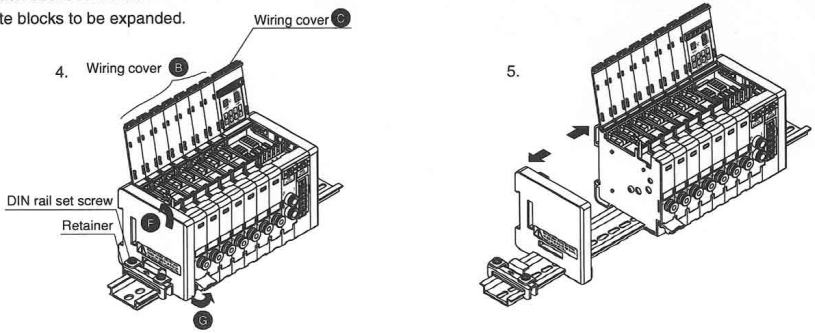


Serial Transmission Type (T9L *)

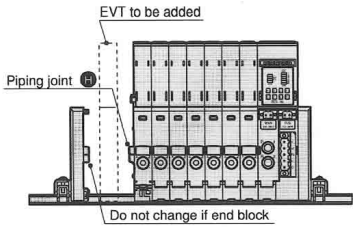


Technical Data (2) Extending the reduced wiring manifold

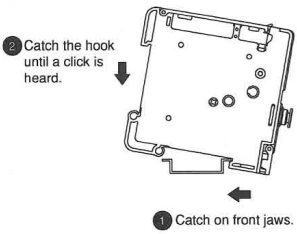
4. Remove the connecting hook spring (F) and connecting hook plate (G) where the manifold is to be increased, and remove the connection between blocks.
5. Separate blocks to be expanded.



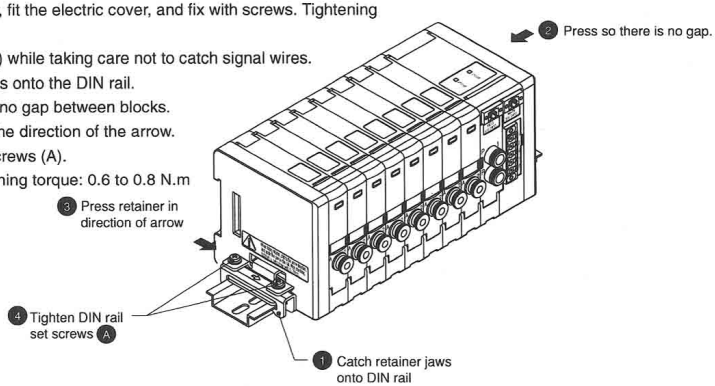
6. Insert the two piping joints (H) into the input (P) and exhaust (R) ports at the separated section.
   Note: At the separated section, two piping joints (H) protrude from each side (4 joints in all).



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 (F) and connecting hook plate (G) to connect blocks.
9. Insert signal wires for the expanded EVT to connectors in the wiring and supply/exhaust block.
10. For serial transmission, close the wiring cover (C). When using the common gland or D-sub connector, fit the electric cover, and fix with screws. Tightening torque: 0.35 to 0.50 N·m.
11. Close the wiring cover (B) while taking care not to catch signal wires.
12. (1) Catch the retainer jaws onto the DIN rail.
    (2) Press so that there is no gap between blocks.
    (3) Press the retainer in the direction of the arrow.
    (4) Tighten DIN rail set screws (A).
    Recommended tightening torque: 0.6 to 0.8 N.m



MEVT How to complete manifold specification sheet (Ver.2)

• Manifold model No. (E.g.)

MEVT 500 — 0 C4 — T9L0R — 20 — U — 3

Model ⒶControl pressure range ⒷInput signal for control ⓒPort size ⓓElectric / supply and exhaust block ⓔStation No. ⓕDIN rail Instal. attitude ⓖVoltage

Part name	Model no.	Allocation position 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	Quantity
EVT	EVT 500 0 C4		○	○	○	○		○	○	○	○	○	○	○	○		○	○	○	○	○	○	○	○								20
	EVT																																
	EVT																																
	EVT																																
	EVT																																
Electric / supply and exhaust block	EVT-T 9L0 R- C4						○									○									○								3
End block	EVT-EL (left side)	○																															1
	EVT-ER (right side)																									○							1
DIN rail	L2=	Acce-ssories	Blanking plug						GWP4-B				GWP6-B			Silencer			SLW-H6														

*1.DIN rail length (L2)

(1) Find DIN rail length by the calculation shown below.

(2) For standard length, length (L2) is not required on the specification sheet.

• How to calculate DIN rail length

Manifold length (L_1) = (A X n) +(B X m) +(C X l) + D X 2
(A: EVT, B: Electric / supply and exhaust block, C: End block, D: Retainer)

DIN rail length (L_2) = L_2' X 12.5

$$L_2' : \frac{L_1 + 40}{12.5} \rightarrow \text{round up at the decimal point}$$

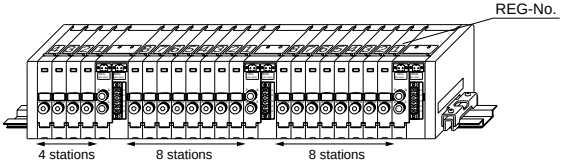
DIN rail mount pitch (L_3) = L_2 - 12.5

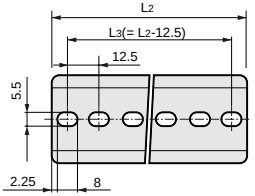
<Notes>
- Viewed from piping port, allocation position is assigned from left. The length found is the standard length.
- Viewed from piping port, allocation position is assigned from left. The length found is the standard length.
- Allocation numbers 1 to 31 on the table above are for reference. For REG-No. shown on wiring cover of EVT, numbers 1, 2, 3... are allocated from nearer side per electric / supply and exhaust block connected.

n, m and l show usage per block.
n: EVT m: Electric / supply and exhaust block l: End block
A / B / C / D show length (width) per block.

			Width of block (mm)
A	EVT		14
B	Electric / supply and exhaust block	T11R	42
		T30R	42
		T9 *	32
C	End block		10
D	Retainer		11.5

*2. Multiple combinations between serial transmission type
Multiple serial transmission types can be combined and installed on the same DIN rail. (Max. station no.: 12 for T9DAR / T9GAR, while 24 for T9LOR)
Install EVT or an end block next to serial transmission slave unit.
Indicate configurations on the manifold specification sheet.
E.g.) For EVT: 20 stations, electric / supply and exhaust units T9LOR: 8 points X 3





• DIN rail length setting table

L1: Manifold length	97.5 or less	97.5 over to 110 or less	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	360 to 372.5	372.5 to 385	385 to 397.5	397.5 to 410	410 to 422.5	422.5 to 435	435 to 447.5
L2: Rail length	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	412.5	425	437.5	450	462.5	475	487.5
Pitch L3	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	412.5	425	437.5	450	462.5	475

Note 1: When L1 exceeds this table range, calculate according to "How to calculate DIN rail length".

MEVT manifold specification sheet (Ver.2)

• Manifold model No .

MEVT ☐ — ☐ ☐ — ☐ — ☐ — ☐ — ☐

Model Ⓐ Control pressure range Ⓑ Input signal for control Ⓒ Port size Ⓓ Electric / supply and exhaust block Ⓔ Station No . Ⓕ DIN rail Instal. attitude Ⓖ Voltage

Part name	Model no.	Allocation position 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	Quantity
EVT	EVT☐-☐☐																																
	EVT☐-☐☐																																
	EVT☐-☐☐																																
	EVT☐-☐☐																																
	EVT☐-☐☐																																
Electric / supply and exhaust block	EVT-T☐R-☐																																
End block	EVT-EL (left side)																																
	EVT-ER (right side)																																
DIN rail	L2= ☐	Acce-ssories	Blanking plug							Silencer																							
			GWP4-B				GWP6-B			SLW-H6																							

• Viewed from piping port, allocate positions from left.
• As shown on the wiring cover of EVT, REG-No. is assigned as 1.2.3 ··· per electric / supply and exhaust block from the nearest side.
• Install electric / supply and exhaust block to right side of EVT.
Serial transmission type allows left installation. Please consult this with CKD.