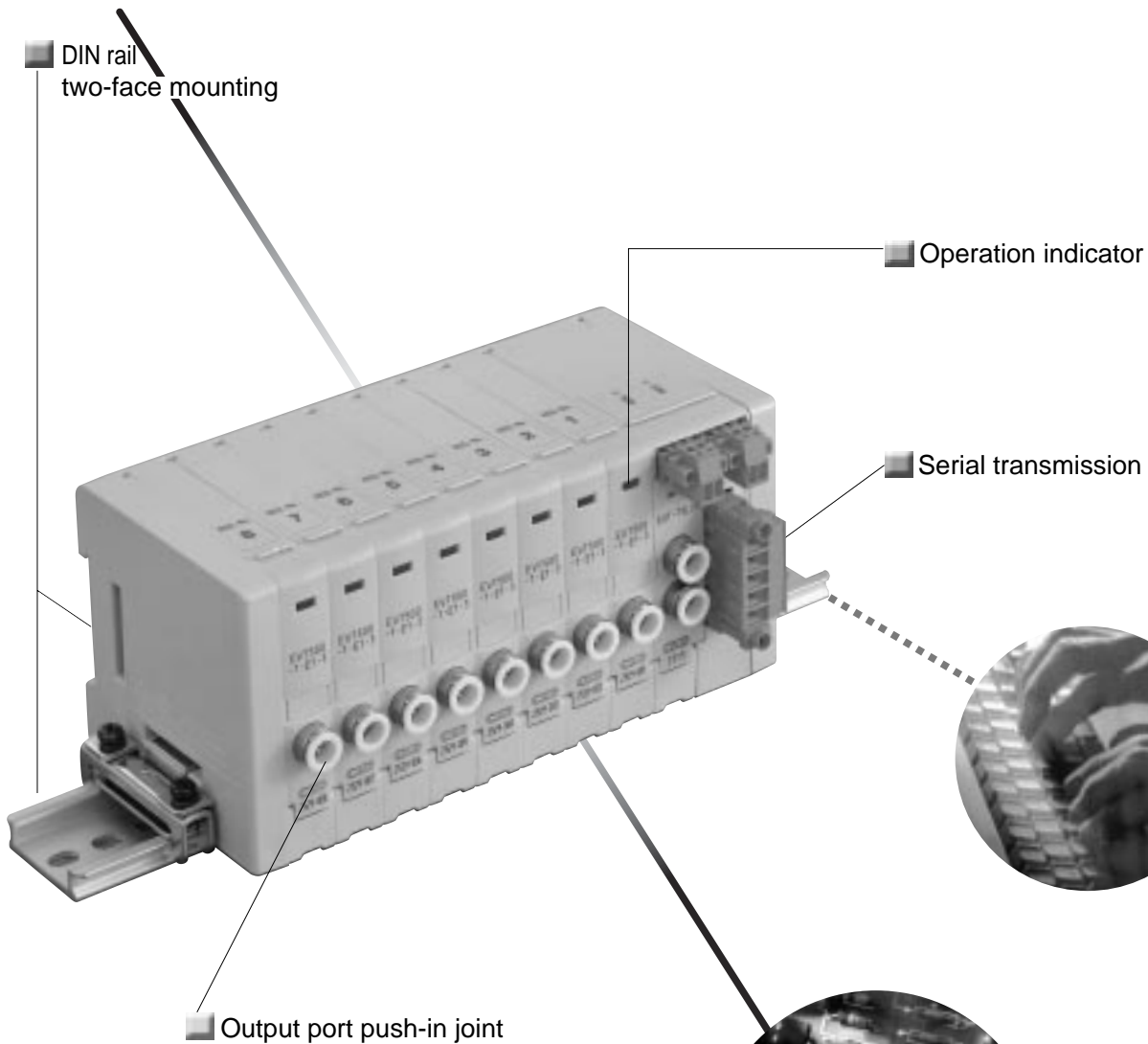# Advancing to ultra-precise micro system ranges

Manifold type thin electro pneumatic regulator compatible with PC control and reduced wiring.
Perfect for pressure control and fine speed cylinder control, etc., in semiconductor fields and precise processing fields, etc.

■ DIN rail two-face mounting

■ Operation indicator

■ Serial transmission
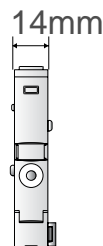
■ Output port push-in joint

MEVT Series

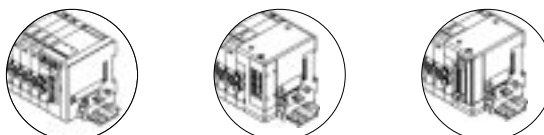Micro thin electro pneumatic regulator

CKD

14mm thin and 80g light

14mm

With this high integration type, up to 24 manifold stations can be used.

Network-compatible

A serial transmission, common gland and D-sub connector wiring block are available.

● Serial transmission type   ● Common gland type   ● D sub-connector type

2-color display of operation status

The 2-color operation indicator (PAT. PEND) indicates the green zone when pressure is at set pressure and the red zone when pressure is not within the setting or when an error has occurred.

Easy piping and wiring work

● Output port   ● Input port

Piping and wiring have been centralized on the front, improving workability and reducing space.

● Exhaust port   ● Wiring connector
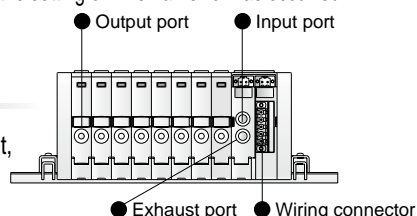
2 installation direction (PAT.PEND)

This regulator can be installed either on the bottom or on the back. The surface for installation and work can be selected freely.

● Bottom installation

● Rear side installation
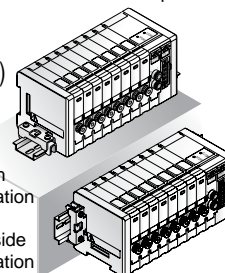
Precise/quick response

Fluid pressure is controlled at high accuracy and high speed response using electrical signals. Repeatability is 0.3%F.S. and response time is 0.1 sec. (with no load) * Refer to specifications

Environmental-friendly product

The material name is indicated on main components, making easy to sort parts for recycling.

Applications

● Painting

Control PC

Manifold dispenser

MEVT   Microcapsule
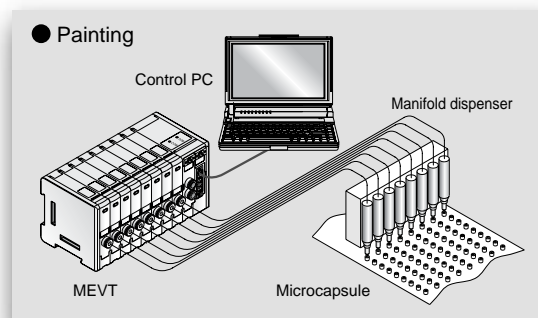
Other applications

● Fluid precise constant discharge system
· IC chip bonding
· PCB cream soldering
· PCB coating
· UV adhesive, etc.
● CMP grinder

Thin electro pneumatic regulator F.R.L. unit

Refrigerating type dryer
Desiccant type dryer
High polymer membrane dryer
Air filter
Auto. drain / others
F.R.L. (Module unit)
F.R.L. (Separate)
Compact F.R.
Precise regulator
F.R.L. (Related products)
Clean F.R.
Electro pneumatic regulator
Air booster
Speed control valve
Silencer
Check valve / others
Joint / tube
Vacuum filter
Vacuum regulator
Suction plate
Magnetic spring buffer
Mechanical pressure SW
Electronic pressure SW
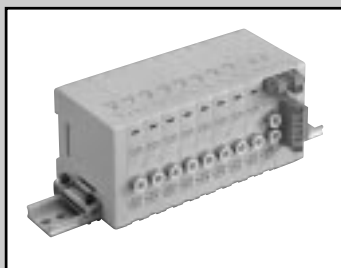Contact / close contact conf. SW
Air sensor
Pressure SW for coolant
Small flow sensor
Small flow controller
Flow sensor for air
Flow sensor for water
Total air system
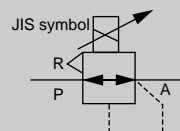Total air system (Gamma)
Ending

Thin electro pneumatic regulator
Reduced wiring manifold type
MEVT Series

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		24 VDC $\pm$10% (safety power supply with ripple ratio 1% or less)	
Current consumption		0.1A or less	
Input signal (input impedance)		0 to 10 VDC (6.6kΩ) 0 to 5 VDC (3.3kΩ) 4 to 20mA	
Monitor output Note 2		1 to 5 VDC (load impedance 1kΩ and over)	
Insulation resistance		100MΩ (500 VDC mega) and over	
Withstand voltage		1500 VAC for one minute	
Hysteresis Note 3		0.4%F.S. or less	
Linearity Note 3		$\pm$0.5% F.S. or less	
Resolution Note 3		0.1% F.S. or less	
Repeatability Note 3		0.3%F.S. or less	
Temperature characteristics	Zero point variation	0.15% F.S./℃ or less	
	Span variation	0.07% F.S./℃ or less	
Maximum flow rate (ANR) Note 4		2 ℓ/min	6 ℓ/min
Step response Note 5	Loadless	0.1s or less	
	15cm^3 load	0.5s or less	
Ambient temperature		5 to 50℃	
Fluid temperature		5 to 50℃	
Indicator Note 6		2 color indicator	
Lubrication		Not available	
Mounting attitude		Free	
Working environment		Containing corrosive gas is not permissible.	
Main dimensions		W14 x D75 x H75	
Weight (body)		80g	

Note 1: Above characteristics are the values where power voltage is 24V$\pm$0.15 VDC, and measured at room temperature.
Note 2: Monitor output is not available for the serial transmission type.
  Device Net-compatible (T9DAR) and CC-Link-compatible (T9GAR) types have pressure monitor data. (Refer to the serial transmission slave station specifications on page 819.)
Note 3: Working pressure is to be max. control pressure X1.1 (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 air blow, etc.
Note 4: The characteristics where working pressure is maximum and control pressure is maximum are shown.
Note 5: 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 6: Operational indicator is just for reference, but not to assure the accuracy.

Manifold specifications

Descriptions		Electric / supply and exhaust block		
		T11R/T30R	T9DAR/T9GAR	T9LOR *2
Manifold type		Block manifold		
Installation method		DIN rail mount type		
Air supply / exhaust method		Common supply / common exhaust		
Maximum station number		8 stations	12 stations *1	24 stations *1
Port size	Output port (A)	ϕ4, ϕ6 push-in joint		
	Input (P)/exhaust port (R)	ϕ4, ϕ6 push-in joint		

* 1: The maximum number of stations for one slave unit is four (T9DAR/T9GAR) and eight (T9LOR).
* 2: T9LOR is not RoHS-compliant.

CKD

How to order

Manifold model no.

$$\boxed{\text{MEVT}} \; \boxed{500} - \boxed{0}\boxed{C4} - \boxed{T11R} - \boxed{8} - \boxed{U} - \boxed{3}$$

Discrete EVT model no.

$$\boxed{\text{EVT}} \; \boxed{500} - \boxed{0}\boxed{C4} \underline{\hspace{1cm}} \boxed{E2} \underline{\hspace{1cm}} \boxed{3}$$

Model no.

Ⓐ Control pressure range

Ⓑ Input control signal

Ⓒ Port size
Note 1
Note 2

Ⓓ Electric / supply and exhaust Block

Ⓔ Lead wire type

Ⓕ Station number

Ⓖ DIN rail Installation attitude

Ⓗ Voltage

* Always indicate "Manifold specification sheet" (page 825).

Symbol	Descriptions				
Ⓐ Control pressure range					
100	0 to 100kPa				
500	0 to 0.5MPa				

Ⓑ Input control signal					
		Electric / supply and exhaust block			
		T11R	T30R	T9DAR	T9GAR	T9LOR
0	0 to 10 VDC	●	●			●
1	0 to 5 VDC	●	●	●	●	
2	4 to 20mA	●	●			

Ⓒ Port size (output port (A))	
C4	ϕ4 push-in joint
C6	ϕ6 push-in joint

Ⓓ Electric / supply and exhaust block	
T11R	Common gland type
T30R	D sub-connector type
T9DAR	Serial transmission type (Device Net input 4 point/output 4 point)
T9GAR	Serial transmission type (CC-Link Ver1.10 input 4 point/output 4 point)
T9LOR	Serial transmission type (SAVE NET output 8 point)

Ⓔ Lead wire type					
		Electric / supply and exhaust block			
		T11R	T30R	T9DAR	T9GAR	T9LOR
E1	3P connector					●
E2	4P connector	●	●	●	●	

Ⓕ Station number	
1	1 station
to	Differs with the reduced wiring connection specifications.
24	24 stations Refer to manifold specifications on page 804.

Ⓖ DIN rail installation attitude	
U	Bottom side
B	Rear side

Ⓗ Voltage	
3	24 VDC

⚠ Note on selection guide

Note 1: Indicate port size of input (P)/exhaust (R) at electric/supply and exhaust block section.
Note 2: A filter is integrated to input (P)/output (A).

Clean room specifications (catalog No. CB-033SA)

● Dust generation preventing structure for use in cleanrooms

MEVT - ·················· - $\boxed{\text{P70}}$

Refrigerating type dryer

Desiccant type dryer

High polymer membrane dryer

Air filter

Auto. drain / others

F.R.L. (Module unit)

F.R.L. (Separate)

Compact F.R.

Precise regulator

F.R.L. (Related products)

Clean F.R.

Electro pneumatic regulator

Air booster

Speed control valve

Silencer

Check valve / others

Joint / tube

Vacuum filter

Vacuum regulator

Suction plate

Magnetic spring buffer

Mechanical pressure SW

Electronic pressure SW

Contact / close contact conf. SW

Air sensor

Pressure SW for coolant

Small flow sensor

Small flow controller

Flow sensor for air

Flow sensor for water

Total air system

Total air system (Gamma)

Ending

Thin electro pneumatic regulator F.R.L. unit

MEVT Series

Refrigerating type dryer

Desiccant type dryer

High polymer membrane dryer

Air filter

Auto. drain / others

F.R.L. (Module unit)

F.R.L. (Separate)

Compact F.R.

Precise regulator

F.R.L. (Related products)

Clean F.R.

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Silencer

Check valve / others

Joint / tube

Vacuum filter

Vacuum regulator

Suction plate

Magnetic spring buffer

Mechanical pressure SW

Electronic pressure SW

Contact / close contact conf. SW

Air sensor

Pressure SW for coolant

Small flow sensor

Small flow controller

Flow sensor for air

Flow sensor for water

Total air system

Total air system (Gamma)

Ending

MEVT component explanation and part list
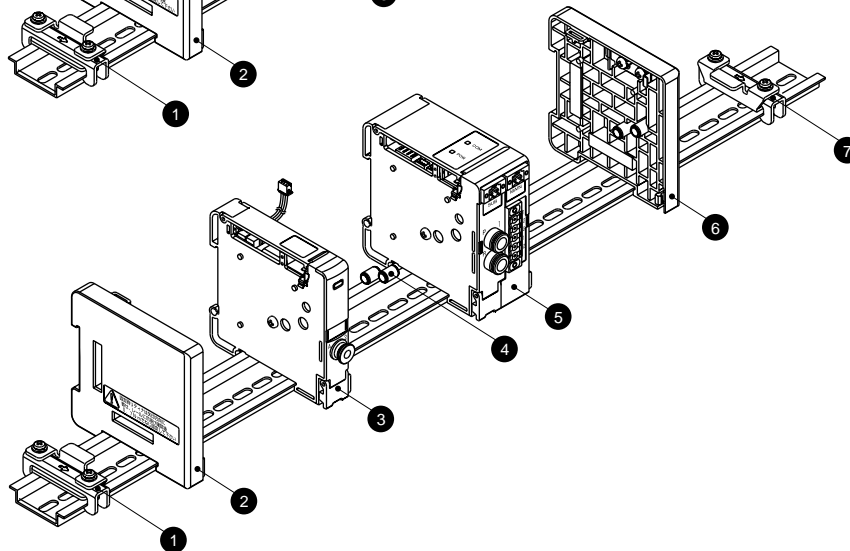
Common gland type
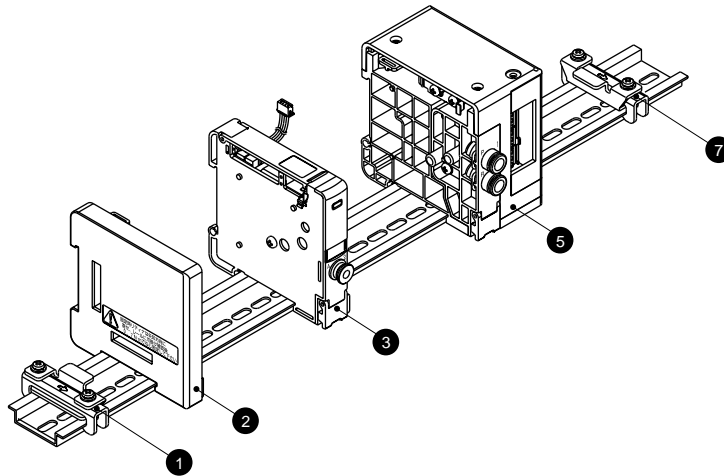
D sub-connector type
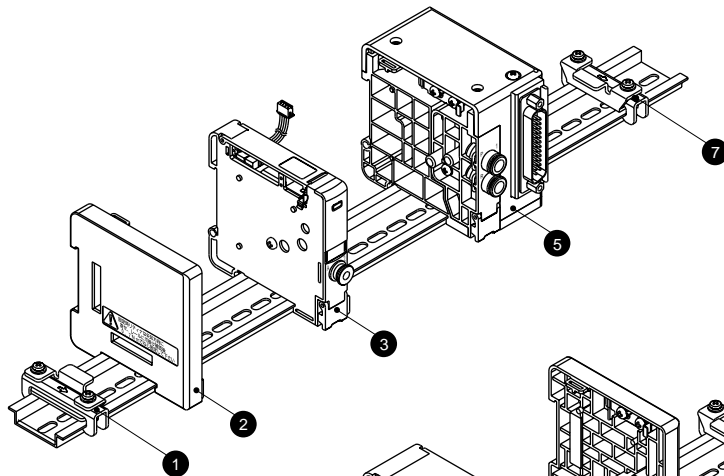
Serial transmission type

Main parts list

No.	Block configurations parts name	Model no.	No.	Block configurations 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	EVT*00	7	Retainer R	EVT-HR
4	Piping joint	EVT-P			

Weight

(g)

Block type		Weight	Block type		Weight
EVT	EVT*00	80	Electric / supply and exhaust block	T11R	115
End block	EVT-EL	30		T30R	125
	EVT-ER	30		T9*R	145
			Retainer	EVT-H*	25
			Piping joint	EVT-P	-

Internal structure and parts list

● EVT
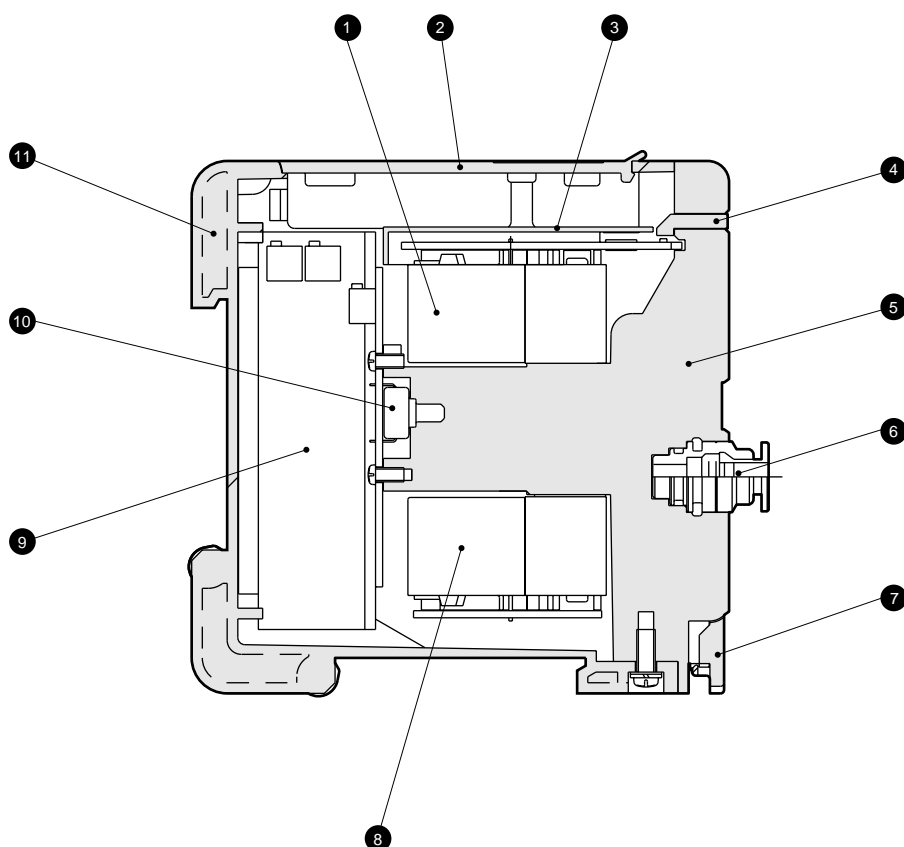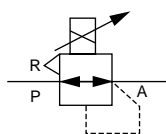
Main parts list

No.	Parts name	Material	No.	Parts name	Material
1	Solenoid valve		7	Connection hook plate	Polyamide resin
2	Wiring cover	ABS resin	8	Solenoid valve for exhaust	
3	Valve guard	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				

Thin electro pneumatic regulator F.R.L. unit

MEVT-T1/3/9 Series

Refrigerating type dryer
Desiccant type dryer
High polymer membrane dryer
Air filter
Auto. drain / others
F.R.L. (Module unit)
F.R.L. (Separate)
Compact F.R.
Precise regulator
F.R.L. (Related products)
Clean F.R.
Electro pneumatic regulator
Air booster
Speed control valve
Silencer
Check valve / others
Joint / tube
Vacuum filter
Vacuum regulator
Suction plate
Magnetic spring buffer
Mechanical pressure SW
Electronic pressure SW
Contact / close contact conf. SW
Air sensor
Pressure SW for coolant
Small flow sensor
Small flow controller
Flow sensor for air
Flow sensor for water
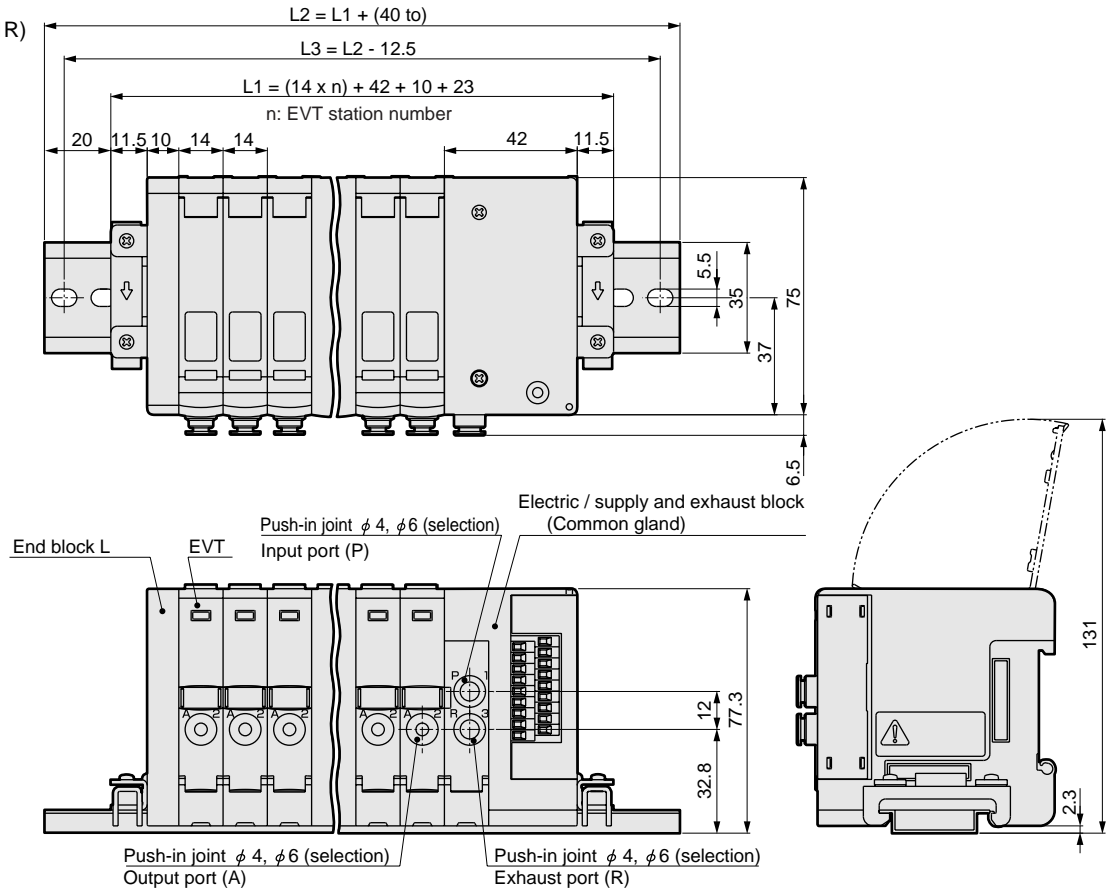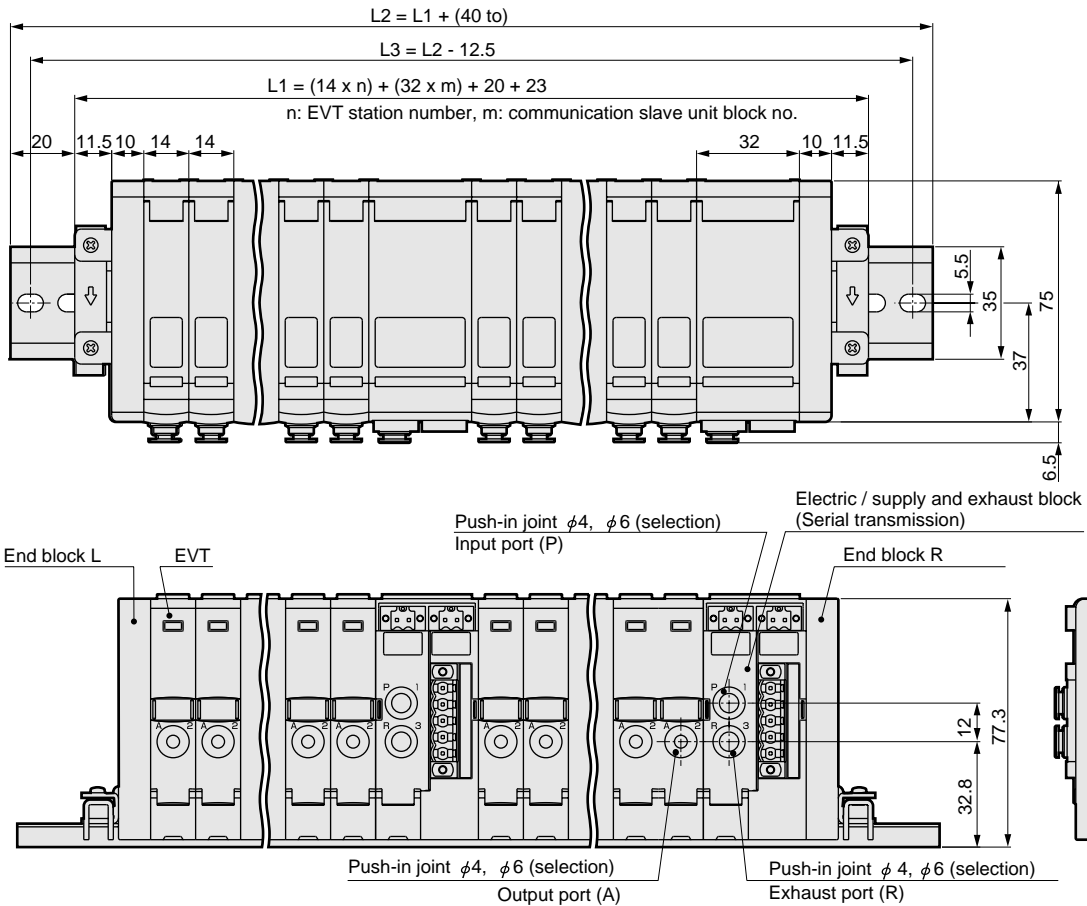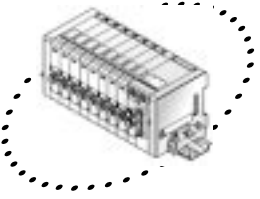Total air system
Total air system (Gamma)
Ending

Dimensions

MEVT
● Common gland type (T11R)

L2 = L1 + (40 to)

L3 = L2 - 12.5

L1 = (14 x n) + 42 + 10 + 23

n: EVT station number

20 11.5 10 14 14 42 11.5

5.5 35 75 37

6.5

End block L   EVT   Input port (P)
Push-in joint φ4, φ6 (selection)
Electric / supply and exhaust block (Common gland)

131

P 1
R 3

12
77.3
32.8

2.3

Push-in joint φ4, φ6 (selection) Output port (A)
Push-in joint φ4, φ6 (selection) Exhaust port (R)

MEVT
● D sub-connector type (T30R)

L2 = L1 + (40 to)

L3 = L2 - 12.5

L1 = (14 x n) + 42 + 10 + 23

n: EVT station number

20 11.5 10 14 14 42 11.5

5.5 35 75 37

6.5

End block L   EVT   Input port (P)
Push-in joint φ4, φ6 (selection)
Electric / supply and exhaust block (D sub-connector)

131

P 1
R 3

12
77.3
32.8

2.3

87.9

Push-in joint φ4, φ6 (selection) Output port (A)
Push-in joint φ4, φ6 (selection) Exhaust port (R)

Dimensions

MEVT

● Serial transmission type (T9*)

$$L2 = L1 + (40 \text{ to})$$
$$L3 = L2 - 12.5$$
$$L1 = (14 \times n) + (32 \times m) + 20 + 23$$

n: EVT station number, m: communication slave unit block no.

20 11.5 10 14 14   32 10 11.5

5.5 35 75 37 6.5

Electric / supply and exhaust block
(Serial transmission)

Push-in joint φ4, φ6 (selection)
Input port (P)

End block R

End block L   EVT

P 1
R 3

A 2   A 2   A 2   A 2   P 1   R 3

12 77.3 32.8

131 2.3

Push-in joint φ4, φ6 (selection)
Output port (A)

Push-in joint φ4, φ6 (selection)
Exhaust port (R)

1: The maximum number of stations for one slave unit is four (T9DAR/T9GAR) and eight (T9LOR).

Thin electro pneumatic regulator
F.R.L. unit

MEVT-T1/3/9 Series

I/O characteristics

● Input signal 0-10 VDC

EVT500

EVT100

Control pressure (MPa)

Input signal (VDC)

● Input signal 0-5 VDC

EVT500

EVT100

Control pressure (MPa)

Input signal (VDC)

● Input signal 4-20mA

EVT500

EVT100

Control pressure (MPa)
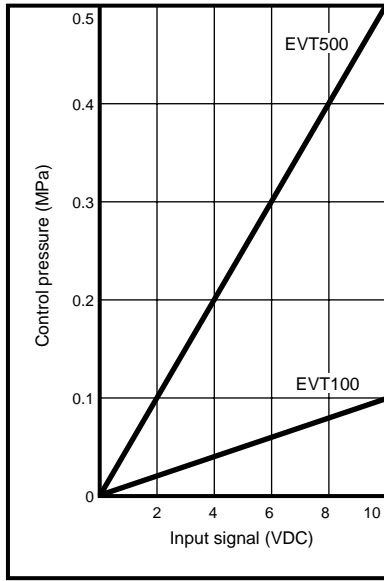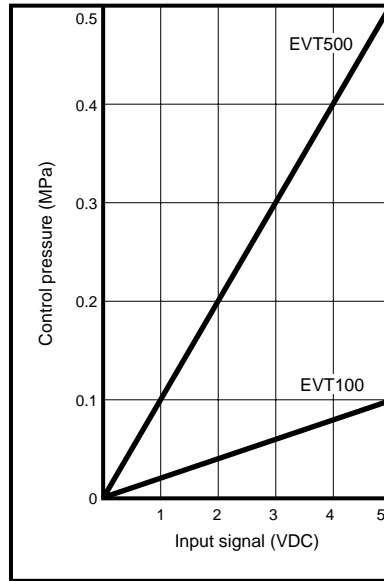
Input signal (mA)
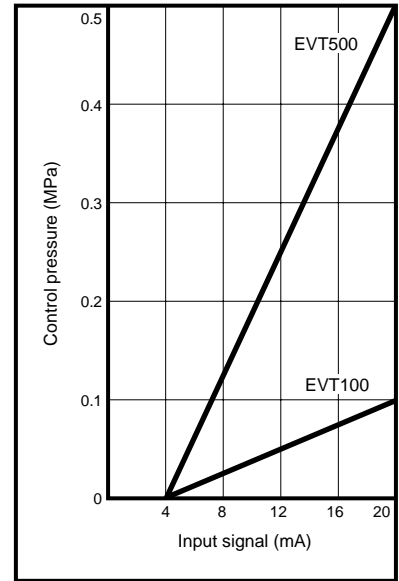
Flow characteristics

● EVT100

Working pressure 200kPa

Control pressure (kPa)

Flow (ℓ/min)

● EVT500

Working pressure 0.7MPa

Control pressure (MPa)

Flow (ℓ/min)

CKD

MEVT-T1/3/9 Series

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 method. (Refer to page 804.)

(2) Viewed from the joint, nominal station No. of EVT is assigned as 1, 2, 3, ⋯ from right.

(3) The REG-No. indicated on the EVT wiring cover is counted as 1, 2, 3, etc., from the nearest EVT for each electric and supply/exhaust block.
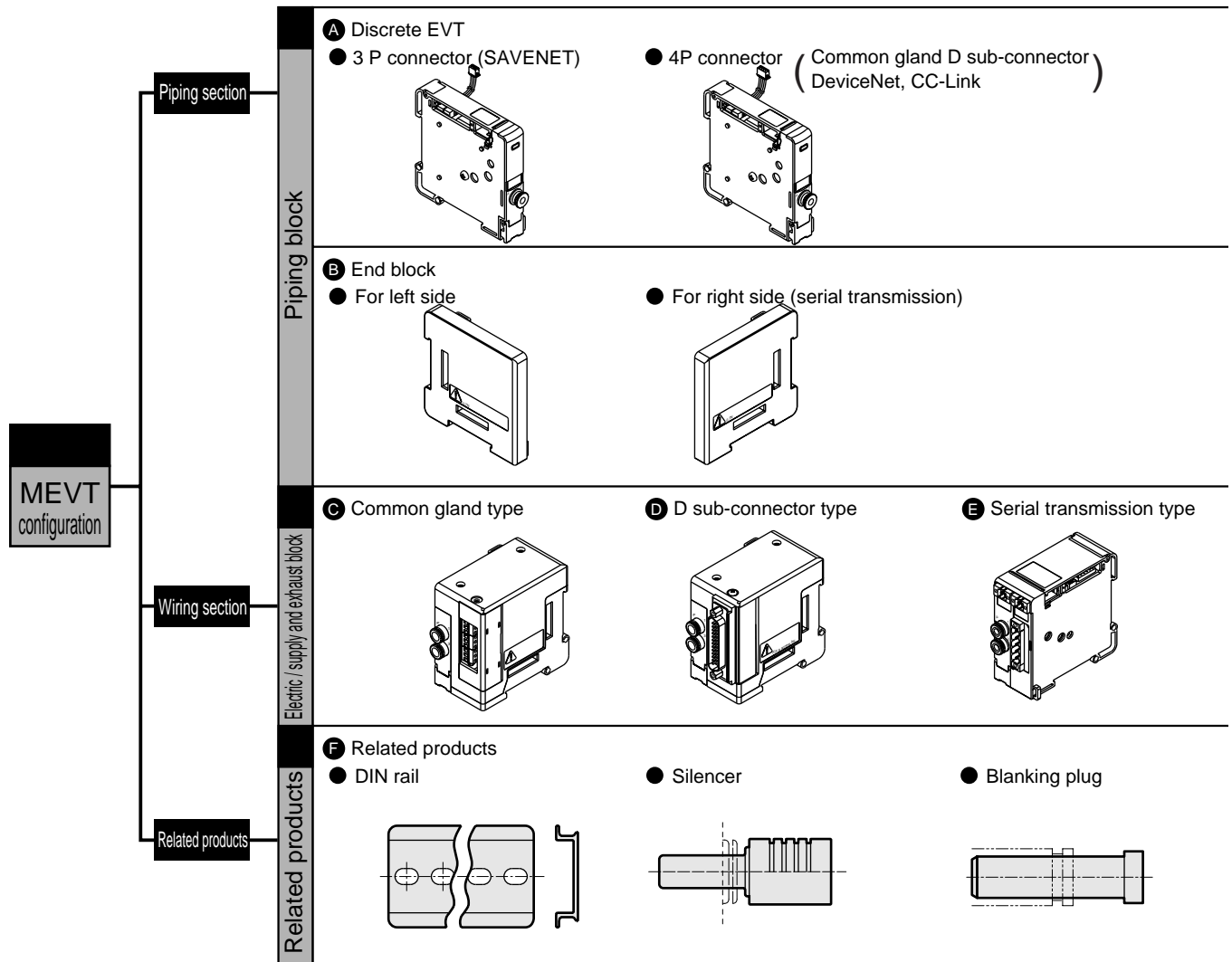
● Electric / supply and exhaust block

(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.

MEVT configuration

Piping section

Piping block

Ⓐ Discrete EVT
● 3 P connector (SAVENET) ● 4P connector (Common gland D sub-connector DeviceNet, CC-Link)

Ⓑ End block
● For left side ● For right side (serial transmission)

Wiring section

Electric / supply and exhaust block

Ⓒ Common gland type Ⓓ D sub-connector type Ⓔ Serial transmission type

Related products

Related products

Ⓕ Related products
● DIN rail ● Silencer ● Blanking plug
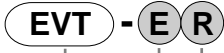
Piping section

A. Discrete EVT

Refer to pages 804 to 805 for selection guide.

B. End block

For serial transmission type (T9*), install the block 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 no. Ⓐ Type Ⓑ Installation position

Ⓐ Type		Ⓑ Installation position	
E	Common exhaust	L	For left side
		R	For right side (serial transmission)
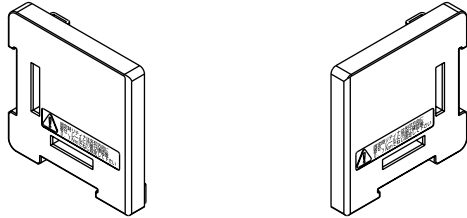
(Retainer)
Fix at both ends of manifold.

EVT - H R

Model no. Ⓐ Installation position

Ⓐ Installation position	
L	For left side
R	For right side
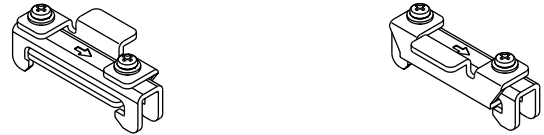
Electric / supply and exhaust block

C. Common gland type

EVT - T11R - C6

Model no.   Type   Ⓑ Input (P)/exhaust (R) port size

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

D. D sub-connector type

EVT - T30R - C6
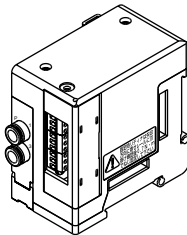
Model no.   Type   Ⓑ Input (P)/exhaust (R) port size

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

E. Serial transmission type

EVT - T9L0R - C6
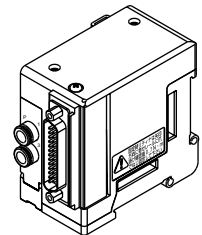
Model no. Ⓐ Type Ⓑ Input (P)/exhaust (R) port size

Ⓐ Type		Ⓑ Input (P)/exhaust (R) port size	
T9DAR	DeviceNet input 4 point/output 4 point	C4	φ 4 push-in joint
T9GAR	CC-Link Ver1.10 input 4 point/output 4 point	C6	φ 6 push-in joint
T9L0R	SAVE NET output 8 point		

Refrigerating type dryer

Desiccant type dryer

High polymer membrane dryer

Air filter

Auto. drain / others

F.R.L. (Module unit)

F.R.L. (Separate)

Compact F.R.

Precise regulator

F.R.L. (Related products)

Clean F.R.

Electro pneumatic regulator

Air booster

Speed control valve

Silencer

Check valve / others

Joint / tube

Vacuum filter

Vacuum regulator

Suction plate

Magnetic spring buffer

Mechanical pressure SW

Electronic pressure SW

Contact / close contact conf. SW

Air sensor

Pressure SW for coolant

Small flow sensor

Small flow controller

Flow sensor for air

Flow sensor for water

Total air system

Total air system (Gamma)

Ending

Thin electro pneumatic regulator
F.R.L. unit

MEVT-T1/3/9 Series

● DIN rail

EVT-BAA (length)

* Select <Length> from the DIN rail length selection table L2 on page 824.

● Silencer
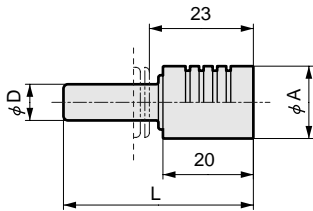
Model no.	D	L	A
SLW-H6	φ6	41	16

● Blanking plug
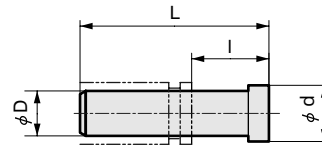
Model no.	D	L	l	d
GWP4-B	φ4	27	9	6
GWP6-B	φ6	29	11	8

CKD

Common gland type (T11R): Wiring method

Notes when wiring

[Common gland type (T11R): Wiring method]

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

Terminal box recommended screw tightening torque 0.25N·m

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

Terminal array   Terminal box No.

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

COM + Monitor input REG No.8
COM + Monitor input REG No.7
COM + Monitor input REG No.6
COM + Monitor input REG No.5
COM + Monitor input REG No.4
COM + Monitor input REG No.3
COM + Monitor input REG No.2
COM + Monitor input REG No.1

8th station
7th station
6th station
5th station
4th station
3rd station
2nd station
1st station

n-th station   2nd station   1st station   **Station number of EVT**

Terminal array of wiring method T11R

* Maximum 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

Refrigerating type dryer
Desiccant type dryer
High polymer membrane dryer
Air filter
Auto. drain / others
F.R.L. (Module unit)
F.R.L. (Separate)
Compact F.R.
Precise regulator
F.R.L. (Related products)
Clean F.R.
Electro pneumatic regulator
Air booster
Speed control valve
Silencer
Check valve / others
Joint / tube
Vacuum filter
Vacuum regulator
Suction plate
Magnetic spring buffer
Mechanical pressure SW
Electronic pressure SW
Contact / close contact conf. SW
Air sensor
Pressure SW for coolant
Small flow sensor
Small flow controller
Flow sensor for air
Flow sensor for water
Total air system
Total air system (Gamma)
Ending

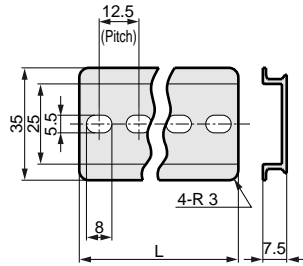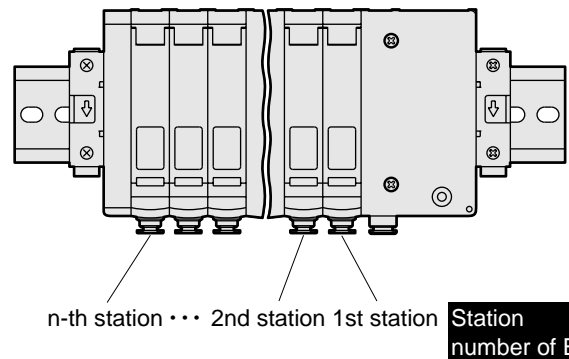Thin electro pneumatic regulator F.R.L. unit

MEVT-T1/3/9 Series

Refrigerating type dryer
Desiccant type dryer
High polymer membrane dryer
Air filter
Auto. drain / others
F.R.L. (Module unit)
F.R.L. (Separate)
Compact F.R.
Precise regulator
F.R.L. (Related products)
Clean F.R.
Electro pneumatic regulator
Air booster
Speed control valve
Silencer
Check valve / others
Joint / tube
Vacuum filter
Vacuum regulator
Suction plate
Magnetic spring buffer
Mechanical pressure SW
Electronic pressure SW
Contact / close contact conf. SW
Air sensor
Pressure SW for coolant
Small flow sensor
Small flow controller
Flow sensor for air
Flow sensor for water
Total air system
Total air system (Gamma)
Ending

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)]
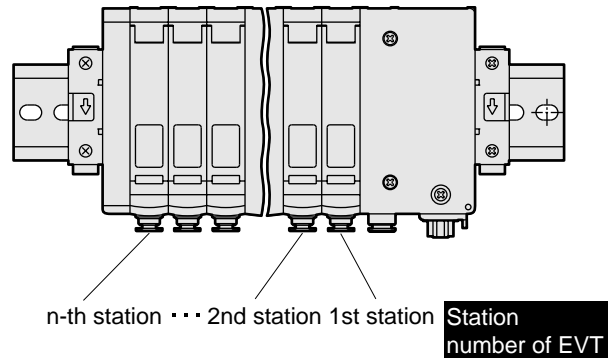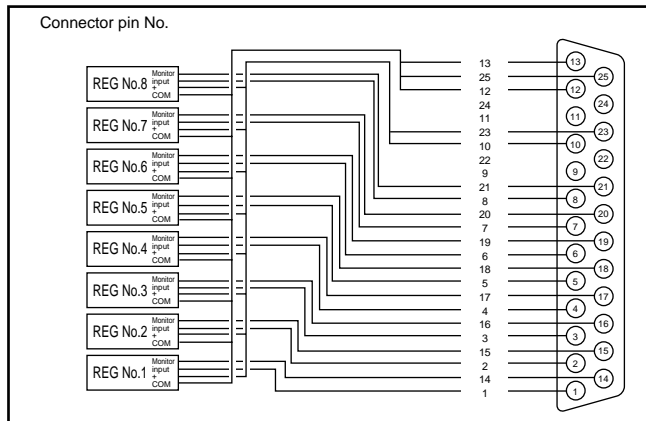
Viewed from piping port, station No. on EVT is **assigned from right**.

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

Connector pin No.

REG No.8 Monitor input + COM
REG No.7 Monitor input + COM
REG No.6 Monitor input + COM
REG No.5 Monitor input + COM
REG No.4 Monitor input + COM
REG No.3 Monitor input + COM
REG No.2 Monitor input + COM
REG No.1 Monitor input + COM

n-th station ··· 2nd station 1st station

Station number of EVT
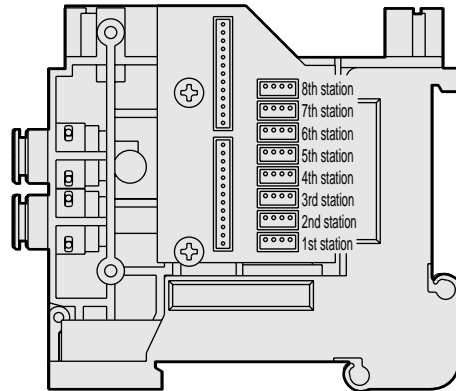
Connector pin array of wiring method T30R

* Maximum station number of EVT is 8 stations.
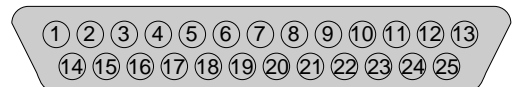
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Pin array	Input signal 1	Input signal 2	Input signal 3	Input signal 4	Input signal 5	Input signal 6	Input signal 7	Input signal 8	(Void)	Power supply +	(Void)	COM	COM
Pin No.	14	15	16	17	18	19	20	21	22	23	24	25	
Pin array	Monitor output 1	Monitor output 2	Monitor 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 cable with D-sub connector

EVT - CABLE - D 0 0 - 1
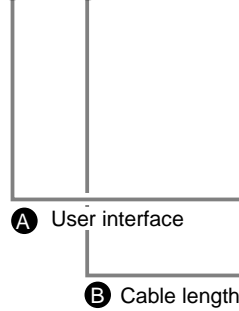
	Symbol	Model
		EVT
Ⓐ	0	Only cut
	1	With round terminal for M3.5 screw
Ⓑ	1	1m
	3	3m
	5	5m

Ⓐ User interface

Ⓑ Cable length

D sub-connector pin No. and conductor

● EVT-CABLE-D00- Ⓑ

D sub-connector
HDBB-25S
HIROSE ELECTRIC CO. LTD.

Multi conductor cable
(UL) 2464-SB-13P24AWG

Plug case
HDB-CTF
HIROSE ELECTRIC CO. LTD.

Cable length

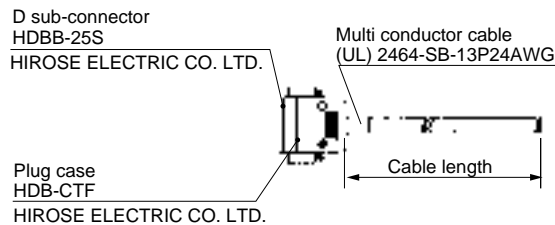| D sub-connector pin No.		1	2	3	4	5	6	7	8	9	10	11	12	13
Conductor I.D.	Isolator color	Yellow	Green	Gray	White	Yellow	Green	Gray	White	Yellow	Orange	Green	Orange	Orange
	Mark type	1 point	1 point	1 point	1 point	2 points	2 points	2 points	2 points	3 points	1 point	3 points	1 point	2 points
	Mark color	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- Ⓑ

Multi conductor cable
(UL2464-SB-13P24AWG)

Round crimp terminal
(1.25-3.5)

D sub-connector
HDBB-25S
HIROSE ELECTRIC CO. LTD.

Plug case
HDB-CTF
HIROSE ELECTRIC CO. LTD.

Cable length   100

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	

Thin electro pneumatic regulator F.R.L. unit

MEVT Series

Refrigerating type dryer
Desiccant type dryer
High polymer membrane dryer
Air filter
Auto. drain / others
F.R.L. (Module unit)
F.R.L. (Separate)
Compact F.R.
Precise regulator
F.R.L. (Related products)
Clean F.R.
Electro pneumatic regulator
Air booster
Speed control valve
Silencer
Check valve / others
Joint / tube
Vacuum filter
Vacuum regulator
Suction plate
Magnetic spring buffer
Mechanical pressure SW
Electronic pressure SW
Contact / close contact conf. SW
Air sensor
Pressure SW for coolant
Small flow sensor
Small flow controller
Flow sensor for air
Flow sensor for water
Total air system
Total air system (Gamma)
Ending

## Serial transmission type (T9*): Wiring method

[Serial Transmission type (T9*)]

● The slave unit's output No. differs with the maker. The internal connector No. and EVT correspond as shown below.

● EVT station are set in order from the right facing the piping port regardless of wiring block 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.

● Do not remove protective connectors connected to void connectors or a failure may occur.

● The working power is 24VDC.

● 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 819)

● To ensure network reliability, use the communication cable recommended for each communication system.

● Securely fix the enclosed connector with set screw. (Refer to the right table)

● The USB 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.

● MAIN and SUB power terminals are connected internally. When not using the SUB power terminal, connect the enclosed connector to prevent short-circuiting.
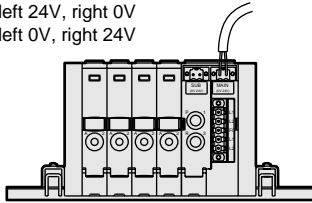
n-th station: 2nd station 1st station — EVT station number
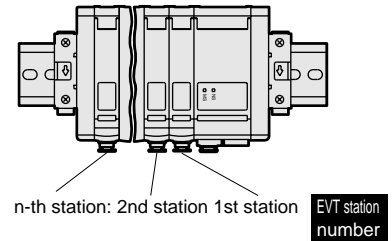
|	Cable set screw	Connector set screw
Power supply connector	0.25N·m	0.4N·m
Communication connector	0.5N·m	

[Wiring power cable]

When using one wiring block (electric, supply and exhaust block)
Connect the power cable to MAIN.
* Check power polarity.
  T9DAR/T9GAR : left 24V, right 0V
  T9LOR   : left 0V, right 24V

When using more than one wiring block (electric, supply/exhaust block)
Connect one power cable to the first MAIN, and then from SUB to the next MAIN.
* Check power polarity.
  T9DAR/T9GAR : left 24V, right 0V
  T9LOR   : left 0V, right 24V
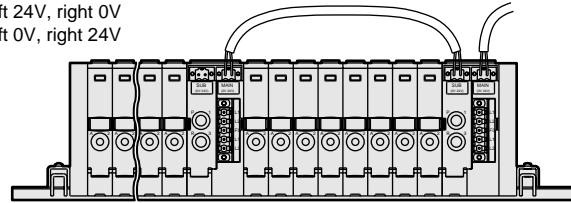
* The above drawing shows the T9LOR. See the table below for the number of EVT stations.

EVT maximum station number

Slave unit (electric, supply and exhaust block) model no.	Communication system name	EVT maximum station number		
		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
T9LOR	SAVE NET	8 units	16 units	24 units

Up to three slave units can be connected per manifold.

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

T9DAR

Channel No. (Pressure setting data)	0 (1)	1 (2)	2 (3)	3 (4)
Channel No. (Pressure monitor data)	0 (1)	1 (2)	2 (3)	3 (4)
Connector No. (REG No.) (EVT station number)	1	2	3	4

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

T9GAR

Channel No. (Pressure setting data)	1	2	3	4
Channel No. (Pressure monitor data)	1	2	3	4
Connector No. (REG No.) (EVT station number)	1	2	3	4

T9LOR

Channel No. (Pressure setting data)	0	1	2	3	4	5	6	7
Connector No. (REG No.) (EVT station number)	1	2	3	4	5	6	7	8

* T9LOR does not have pressure monitor data.

Internal connector No.

T9DAR   T9GAR   T9LOR

CKD
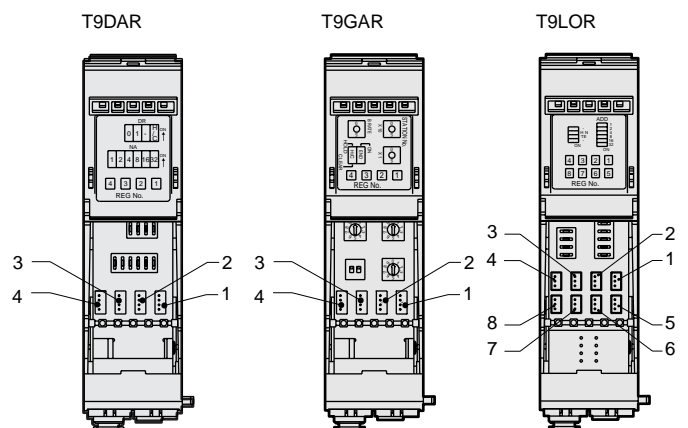
Serial transmission slave unit specifications (See the table below for the applicable PLC correspondence table)

Descriptions	T9DAR	T9GAR	T9L0R
Communication subject	DeviceNet *1	CC-Link Ver1.10 *2	SAVENET
Communication speed	125kbps/250kbps/500kbps	156kbps/625kbps/2.5Mbps/ 5Mbps/10Mbps	3Mbps (half duplex)
Power 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	60mA or less Load current is not included Communication power supply (V +, V-): 50mA or less	80mA or less Load current is not included	60mA or less Load current is not included
Max. output no. (DA output)	4 points		8 point
Max. input no. (AD input)	4 points		-
DA output — Pressure setting data	12 bit		
DA output — Precision *4	±1%F.S. or less		
AD input — Pressure monitor data	12 bit		-
AD input — Precision *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)	Occupied address number: 1 address

*1 Consult with CKD for EDS file .
*2 Consult with CKD for 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's 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 table

Model no.	Maker name (progress body)	Series	Communication system name	Host station model no.
T9DAR	ODVA	Each Corp. DeviceNet compatible PLC, PC, SBC	DeviceNet	Connect to each maker's DeviceNet compatible master
	OMRON	SYSMAC CS Series SYSMAC CJ Series SYSMAC CV Series SYSMAC Series SYSMAC C200HS Series Other sensors	DeviceNet (CompoBus/D)	Type CS1W-DRM21-V1 Type CJ1W-DRM21 Type CVM1-DRM21-V1 Type C200HW-DRM21-V1 Type ITNC-EI*01-DRM (master integrated PLC) Type 3G8B3-DRM21 (VME board) Other DeviceNet compatible master
	TOYODA	PC3J/2J Series PC3JD PC2F/PC2FS	DeviceNet (DLNK)	THK-5398 TIC-5642 (master integrated PLC) TFU-5359 Other DeviceNet compatible master
T9GAR	CLPA	Each Corp. CC-Link compatible PLC, PC, SBC	CC-Link	Connect to each maker's CC-Link compatible master
	MITSUBISHI	MELSEC A Series MELSEC QnA Series MELSEC Q Series Other sensors	CC-Link	AJ61BT11 AJ61QBT11 A1SJ61BT11 A1SJ61QBT11 QJ61BT11 A80BD-J61BT11 (PCI bus) Other CC-Link master
T9LOR	CKD Corporation ONE company	Compatible with PC, SBC, each Corp. PLC Consult with CKD for details.	SAVE NET	CSN-1001-PC/AT-MA *1 CSN-1002-PC/AT-MA *1 CSN-1001-PCIMA-A *1 CSN-1002-PCIMA *1 CSN-1001-CAMA *1 Other SAVENET compatible interface *1

*1: Be sure to confirm that master driver software is compatible with the 8-channel D/A converter when using T9LOR with SAVENET.

Refrigerating type dryer
Desiccant type dryer
High polymer membrane dryer
Air filter
Auto. drain / others
F.R.L. (Module unit)
F.R.L. (Separate)
Compact F.R.
Precise regulator
F.R.L. (Related products)
Clean F.R.
Electro pneumatic regulator
Air booster
Speed control valve
Silencer
Check valve / others
Joint / tube
Vacuum filter
Vacuum regulator
Suction plate
Magnetic spring buffer
Mechanical pressure SW
Electronic pressure SW
Contact / close contact conf. SW
Air sensor
Pressure SW for coolant
Small flow sensor
Small flow controller
Flow sensor for air
Flow sensor for water
Total air system
Total air system (Gamma)
Ending

Thin electro pneumatic regulator F.R.L. unit

MEVT Series

Model no.	LED display	Wiring and setting method

T9DAR

LED display

☐ NS
☐ MS

LED name	Display content
NS	Displays network status
MS	Displays slave unit's status

Wiring method

Front station: (Black) V−, (Blue) CAN_L, (No) Drain, (White) CAN_H, (Red) V+

DeviceNet cable — T branch tap — Following station: V−, CAN_L, Drain, CAN_H, V+

(Black) (Blue) (No) (White) (Red)

Multi drop method   T branch method

The wiring section connector is included.
Check power's polarity. (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−).

How to set

DR   HOLD

0 1 - CLEAR

ON

Set the communication speed.   Set output status if a communication error occurs.

NA

1 2 4 8 16 32

ON

Set the slave unit address.

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

Setting HOLD/CLEAR

◆ 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)

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

T9GAR

LED display

☐ LERR
☐ LRUN
☐ RD
☐ SD
☐ POWER

LED name	Display content
LERR	Lights when transmission error occurs. Turns off when time has lapsed. Lights when the station No. setting or transmission speed setting is incorrect. Blinks when the station number setting or transmission speed setting changes midway.
LRUN	Turns on when accuracy data is received, and turns off when time has lapsed. (Lights when correct data is received.)
RD	Turns on when receiving data.
SD	Turns on when sending data.
POWER	Lights when power is ON.

Wiring method

Front station: (Blue) DA, (White) DB, (Yellow) DG, (Bare) SLD, FG

CC-Link the dedicating cable — Following station: DA, DB, DG, SLD, FG

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.
Check power's polarity. (Left: 24 V, right: 0 V)
Unit power and regulator power use a common terminal.

How to set

Set the transmission speed.

0: 156kbps 3: 5Mbps
1: 625kbps 4: 10Mbps
2: 2.5Mbps 5 to: setting not available

B RATE

HOLDEND

ON

CLEAR   Terminal station setting

Set output status if a communication error occurs.

Set the slave unit's station No. (1st place)

STATION No. (X 1)

STATION No. (X 10)

Set the slave unit's station No. (1st place)

Setting HOLD/CLEAR
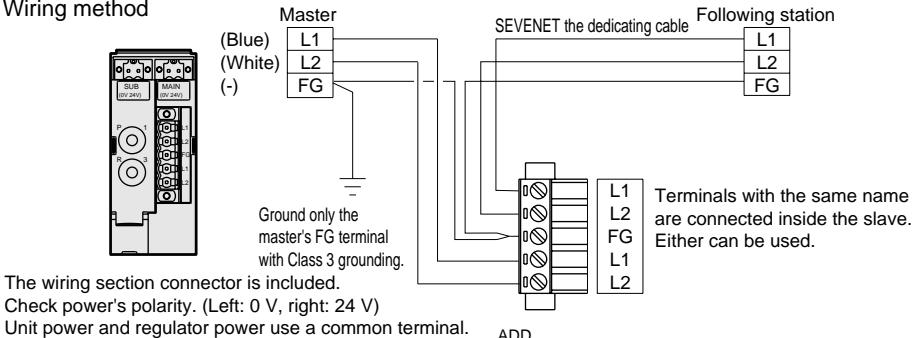
◆HOLD
· When the "analog output enabling signal" flag turns off, output of the corresponding channel is held in the status just before the flag turned off.
· If a communication error occurs, the status of output is held in the state just before the error occurred. (Only for set addresses)
Note: Output may not be held depending on the state of the error.
◆CLEAR
· 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)
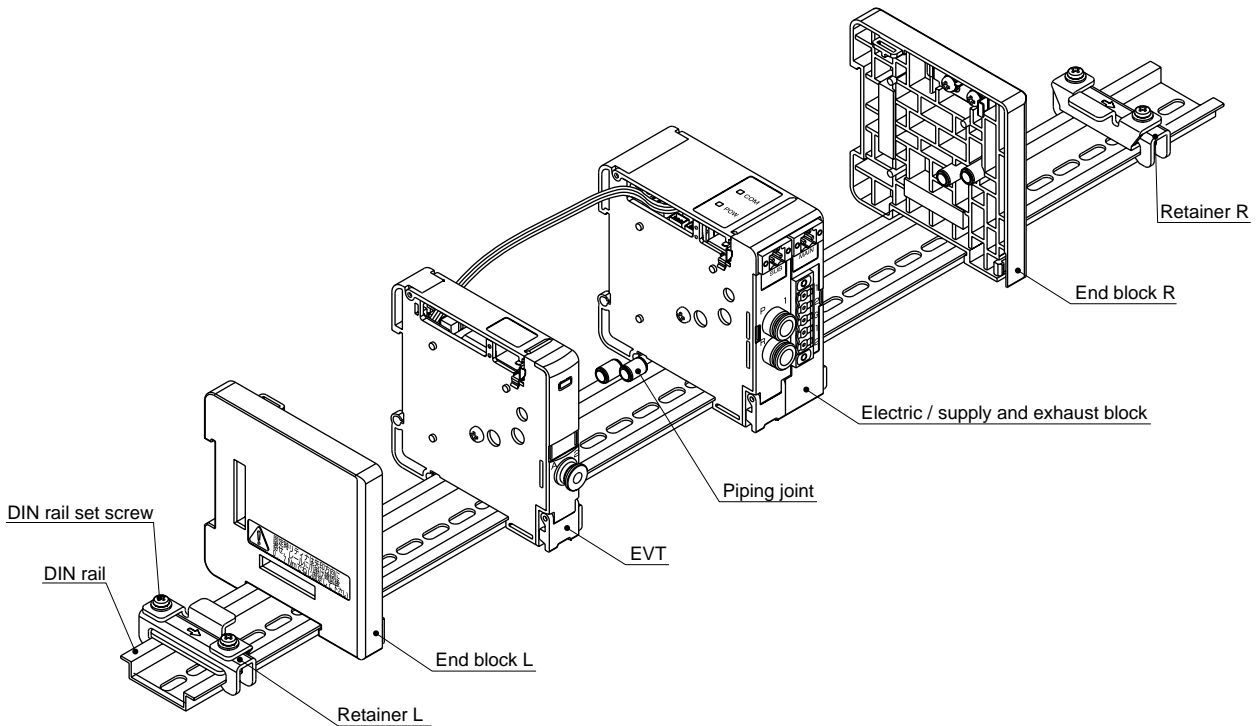
Terminal station setting
This product has a 110 Ω terminator between DA and DB communication lines. The terminal station is set by turning the terminal station setting switch on. A terminator need not be connected to this product's connector.
<CAUTION>
Be sure to turn the terminal station setting switch off when this product is the terminal station and a CC-Link-dedicated cable (CC-Link dedicated high performance cable (Kurashige Denko FANC-SBH) requiring a terminal resistance other than 110Ω is used for the communication cable. This also applies when the terminator's connection differs due to the 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.

⚠ **Cautions**
● Output to EVT is output simultaneously for all channels.
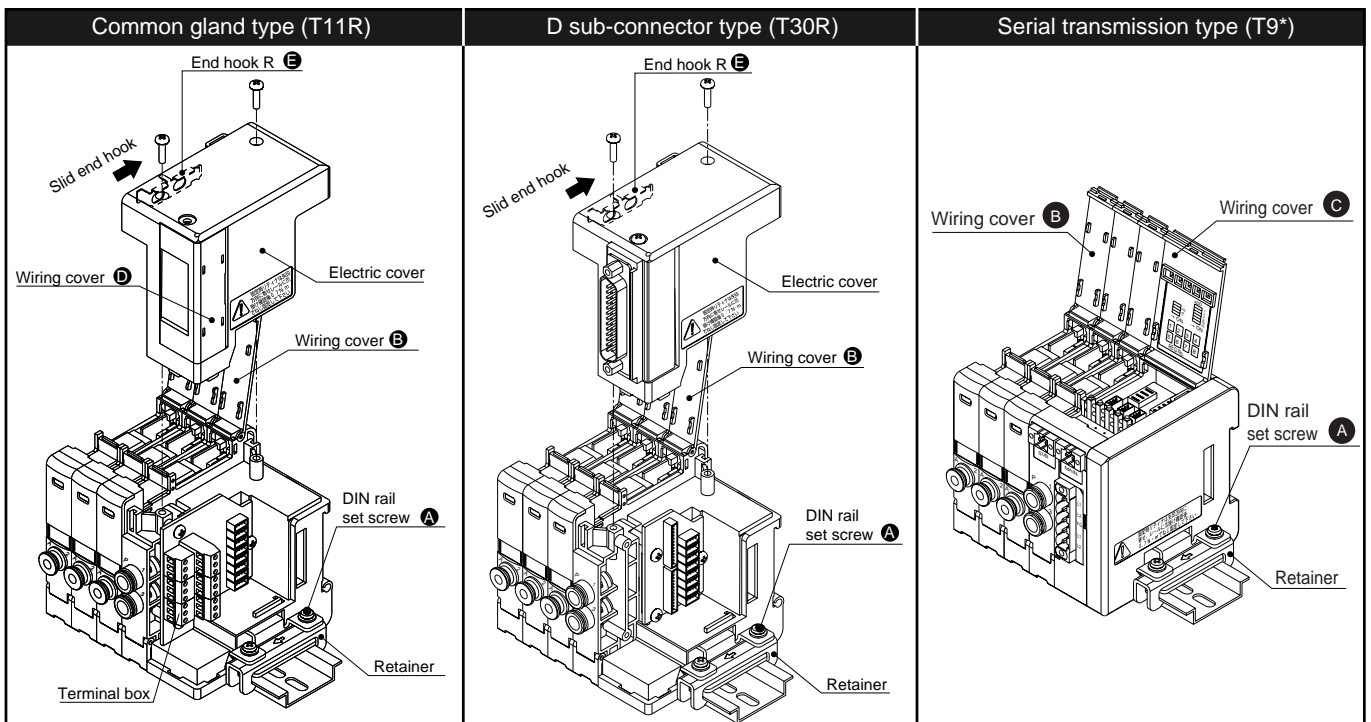● Consult with CKD for information on PRO files.

Model no.	LED display	Wiring and setting method

Wiring method

Master
(Blue) L1
(White) L2
(-) FG

SEVENET the dedicating cable

Following station
L1
L2
FG

Ground only the master's FG terminal with Class 3 grounding.

L1
L2
FG
L1
L2

Terminals with the same name are connected inside the slave. Either can be used.

The wiring section connector is included.
Check power's polarity. (Left: 0 V, right: 24 V)
Unit power and regulator power use a common terminal.

How to set

- H N   H: HOLD   N: N ON HOLD
- TE   Terminal station setting
→ ON

ADD
1
2
4
8
16
32   Set the address.
→ ON

Setting HOLD/N ON HOLD
◆ HOLD
   When a system error or line error, etc., occurs, the slave unit's state before the error is held.
   (For set address only)
◆ N ON HOLD
   Output of stations with the above error is released. (For set address only)
◆ The set is in HOLD at shipping.

Terminator setting
◆ Set the end station to the ON side.
◆ The end station setting also function as the switch of terminating resistance. Set only the slave unit farthest the master units as the end station. Note that the end station is not related to the set address. If it is not set, problems could occur.

⚠ **Cautions**
● SAVENET sends data for one channel with one scan. Multiple channels cannot be output at the same timing.
● Be sure to confirm that master driver software is compatible with the 8-channel D/A converter when using T9LOR with SAVENET.

Model no.: T9LOR

☐ COM

☐ POW

LED name	Display content
COM	Turns on when sending data
POW	Lights when power is ON

Thin electro pneumatic regulator F.R.L. unit

MEVT deal drawing

- Retainer R
- End block R
- Electric / supply and exhaust block
- Piping joint
- EVT
- DIN rail set screw
- DIN rail
- End block L
- Retainer L

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, slide end hook R **E** and release the hook. Next, loosen and remove screws on the electric cover. For serial transmission, open the wiring cover **C**. (For common gland, check that the wiring cover **D** does not catch the gland.)

Common gland type (T11R)	D sub-connector type (T30R)	Serial transmission type (T9*)

Common gland type (T11R):
- End hook R **E**
- Slid end hook
- Wiring cover **D**
- Electric cover
- Wiring cover **B**
- DIN rail set screw **A**
- Terminal box
- Retainer

D sub-connector type (T30R):
- End hook R **E**
- Slid end hook
- Electric cover
- Wiring cover **B**
- DIN rail set screw **A**
- Retainer

Serial transmission type (T9*):
- Wiring cover **B**
- Wiring cover **C**
- DIN rail set screw **A**
- Retainer

CKD

4. Remove the connecting hook spring 🅕 and connecting hook plate 🅖 where the manifold is to be increased, and remove the connection between blocks.

5. Separate blocks to be expanded.

4.   Wiring cover 🅑

Wiring cover 🅒

5.

DIN rail set screw

Retainer

🅕

🅖
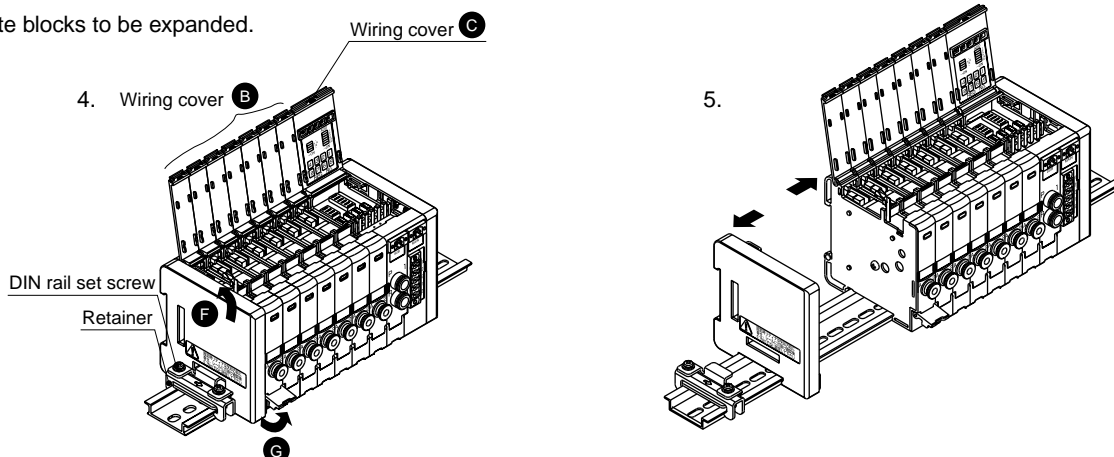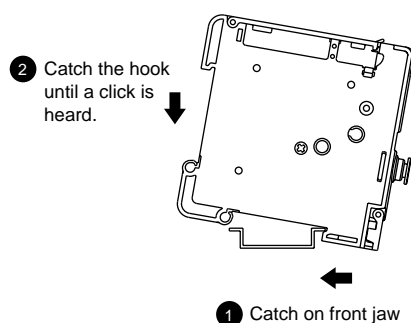
6. Insert two piping joints 🅗 into the input (P) and exhaust (R) ports at the separated section.

(Note: At the separated section, two piping joints 🅗 protrude from each side (4 joints in all)).

EVT to be added

Piping joint 🅗

Do not change if end block
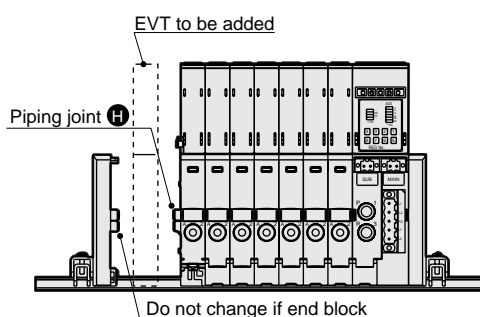
7. Mount the EVT to be added to the DIN rail.

❷ Catch the hook until a click is heard.

❶ Catch on front jaw

8. Press so that there is no gap between blocks, and close the connecting hook spring 🅕 and connecting hook plate 🅖 to connect blocks.

9. Insert signal wires for the expended EVT to connectors in the wiring and supply/exhaust block.

10. For serial transmission, close the wiring cover 🅒. When using the common gland or D-sub connector, fit the electric cover on, fix it in place with screws, and return the end hook R 🅔 to the original position.
(Tightening torque: 0.35 to 0.5N·m)

11. Close wiring cover 🅑 while taking care not to catch signal wires.

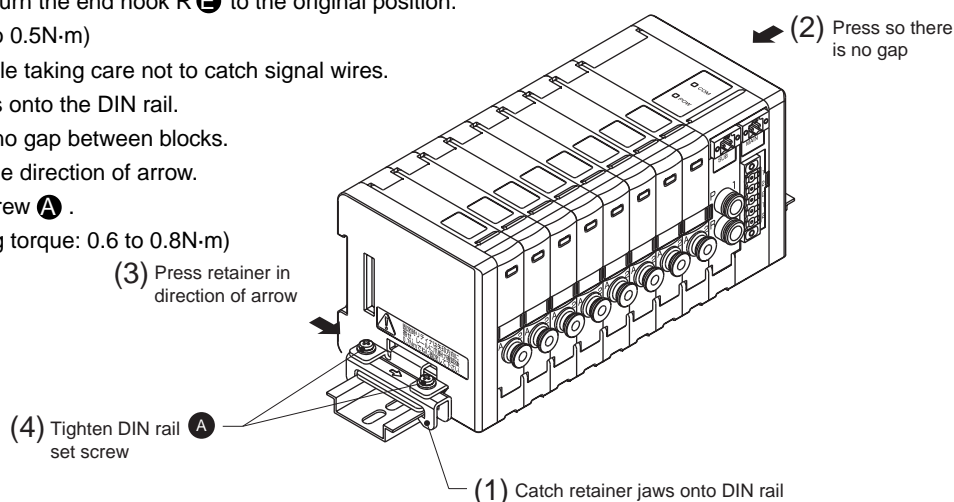12. (1) Catch the retainer jaws onto the DIN rail.
(2) Press so that there is no gap between blocks.
(3) Press the retainer in the direction of arrow.
(4) Tighten DIN rail set screw 🅐.
(Recommended tightening torque: 0.6 to 0.8N·m)

(2) Press so there is no gap

(3) Press retainer in direction of arrow

(4) Tighten DIN rail set screw 🅐

(1) Catch retainer jaws onto DIN rail

Thin electro pneumatic regulator F.R.L. unit

MEVT Series

Refrigerating type dryer
Desiccant type dryer
High polymer membrane dryer
Air filter
Auto. drain / others
F.R.L. (Module unit)
F.R.L. (Separate)
Compact F.R.
Precise regulator
F.R.L. (Related products)
Clean F.R.
Electro pneumatic regulator
Air booster
Speed control valve
Silencer
Check valve / others
Joint / tube
Vacuum filter
Vacuum regulator
Suction plate
Magnetic spring buffer
Mechanical pressure SW
Electronic pressure SW
Contact / close contact conf. SW
Air sensor
Pressure SW for coolant
Small flow sensor
Small flow controller
Flow sensor for air
Flow sensor for water
Total air system
Total air system (Gamma)
Ending

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

● Manifold model no. (example)

MEVT [500] - [0] - [C4]   [T9L0R] - [20] - [U] - [3]

Model no. | **Ⓐ** Pressure control range | **Ⓑ** Control input signal | **Ⓒ** Port size | **Ⓓ** Electric / supply and exhaust block | **Ⓕ** Station number | **Ⓖ** DIN rail installation attitude | **Ⓗ** Voltage

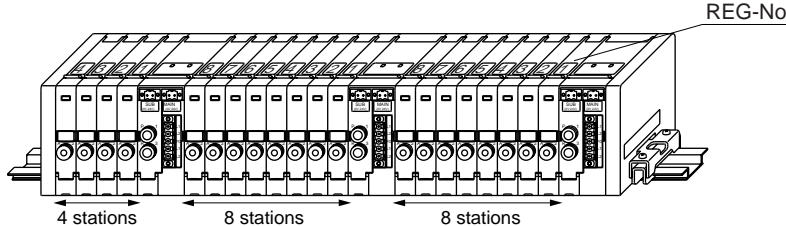| Part name	Model no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Quantity
																					Layout												
EVT	**EVT** [500]-[0][C4]	○	○	○	○		○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○										20
	EVT [ ]-[ ]																																	
	EVT [ ]-[ ]																																	
	EVT [ ]-[ ]																																	
	EVT [ ]-[ ]																																	
Electric / supply and exhaust block	**EVT-T** [9L0][R-][C4]						○									○									○									3
End block	**EVT-EL** (for left side)	○																																1
	EVT-ER (for right side)																									○								1
DIN rail	**L2 =** [ ]	Attached part	Blanking plug			Silencer																											
			GWP4-B		**GWP6-B**		**SLW-H6**																										

*1 DIN rail length (L2)

(1) Find DIN rail length by the calculation shown below.
   The obtained length is standard.

(2) For standard length, length (L2) is not required on the specification sheet.
   Indicate the length when using a non-standard length.
   Select the length based on the following DIN rail length setting table L2.

● How to calculate length of DIN rail
   Manifold length $(L_1) = (A \times n) + (B \times m) + (C \times 1) + D \times 2$
   (EVT) (Electric / supply and exhaust block) (End block) (Retainer)
   DIN rail length $(L_2) = L_2' \times 12.5$

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

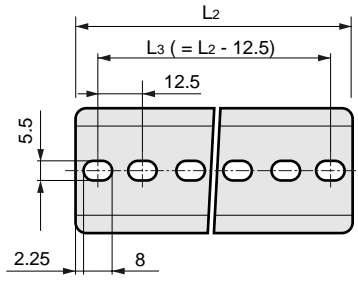   DIN rail mounting pitch $(L_3) = L_2 - 12.5$

*2 Multiple combinations between serial transmission type
   Multiple serial transmission types can be combined and installed on the same DIN rail.
   (Maximum station number: 12 for T9DAR/T9GAR, while 24 for T9LOR)
   Install EVT or end block next to serial transmission slave unit.
   Indicate the combination on the specification sheet.
   Example) EVT: 20 stations, electric/supply and exhaust unit T9LOR: 8 point x 3

(Note)
· Viewed from piping port, allocation position is assigned from left.
· Select the type from the block part configuration (pages 812 to 814).
· 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 indicates length (depth) per block.

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

REG-No.

4 stations | 8 stations | 8 stations

L2
L3 (= L2 - 12.5)
12.5
5.5
2.25   8

● DIN rail length setting table

L1: Manifold length		97.5	110	122.5	135	147.5	160	172.5	185	197.5	210	222.5	235	247.5	260	272.5	285	297.5	310	322.5	335	347.5	360	372.5	385	397.5	410	422.5	435
		to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to
	97.5 to	110	122.5	135	147.5	160	172.5	185	197.5	210	222.5	235	247.5	260	272.5	285	297.5	310	322.5	335	347.5	360	372.5	385	397.5	410	422.5	435	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".

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MEVT manifold specifications (Ver.2)

● Manifold model no.

MEVT ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Model no.	**A** Pressure control range	**B** Control input signal	**C** Port size	**D** Electric / supply and exhaust block	**F** Station number	**G** DIN rail Installation attitude	**H** Voltage

Part name	Model no.	Layout 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** (for left side)																																	
	EVT-ER (for right side)																																	
DIN rail	**L2 =** ☐	Attached part	Blanking plug **GWP4-B**		**GWP6-B**		Silencer **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 exhaust block from the nearest side.
· Install electric/supply and exhaust block to right side of EVT.
  Serial transmission type allows left installation. Consult with CKD.