CKD

SM－295321－A

INSTRUCTION MANUAL

PARECT
Electro-pneumatic Regulator

MEVT Series

COMMON TERMINAL STAND TYPE
MEVT-T11R

D-SUB CONNECTOR TYPE
MEVT-T30R

- Please read this instruction manual carefully before using this product, particularly the section describing safety.
- Retain this instruction manual with the product for further consultation whenever necessary.

Ver.4

CKD Corporation

For Safety Use

To use this product safety, basic knowledge of pneumatic equipment, including materials, piping, electrical system and mechanism, is required (ISO 4414 *1 JIS B 8370 *2).

We do not bear any responsibility for accidents caused by any person without such knowledge or arising from improper operation.

Our customers use this product for a very wide range of applications, and we cannot keep track of all of them. Depending on operating conditions, the product may fail to operate to maximum performance, or cause an accident. Thus, before placing an order, examine whether the product meets your application, requirements, and how to use it.

This product incorporates many functions and mechanisms to ensure safety. However, improper operation could result in an accident. To prevent such accidents **read this operation manual carefully for proper operation.**

Observe the cautions on handling described in this manual, as well as the following instructions:
Additionally, the caution is classified into the following three groups, “CAUTION”, “WARNING”, and “DANGER”, to identify the degree of the danger it presents and possible hazard.

⚠ **DANGER** : Failure to pay attention to DANGER notices may cause a situation that results in a fatality or serious injury and that requires urgent addressing.

⚠ **WARNING** : Failure to pay attention to WARNING notices may result in a fatality or serious injury.

⚠ **CAUTION** : Failure to pay attention to WARNING notices may result in injury or damage to equipment or facilities.

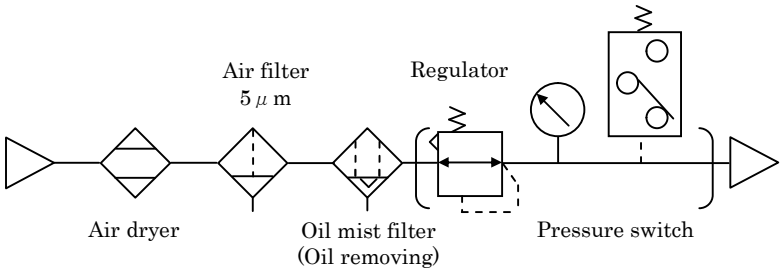
*1) ISO 4414 : Pneumatic fluid power ··· Recommendations for the application of equipment to transmission and control systems.

*2) JIS B 8370 : General rule for pneumatic systems

CAUTION

Points to caution when handling the product

(1) Inferior quality air will deteriorate the product characteristics and affect its durability badly. Use an air dryer, filter and Oil mist filter to eliminate solid material, moisture and tar and thus provide clean air from the pressure source.



When the control pressure decreases, for example, the air runs from the secondary side through the regulator to the exhaust port (R). Dust inside the secondary side piping or the load circuit, therefore, will similarly deteriorate the product's characteristics and greatly affect its durability. Ensure the interior of the piping is always clean.

(2) The products response capability will be affected by the working pressure and load volume. When a stable response is required, regulate the working pressure.

(3) Flush air into the pneumatic pipes employed in the PARECT electro-pneumatic regulator before connection. Be careful not to allow sealant tape to stray into the pipes.

(4) To avoid malfunction caused by electrical noise:

(a) Insert a line filter into the AC power line.

(b) Use a surge suppresser like a CR or diode in the inductive load (solenoid valve, relay and so on) to remove any noise at the source.

(c) Keep the MEVT series cables as far away as possible from power line for motor.

(d) For wiring to the PARECT electro-pneumatic regulator, always use the shield wire. (T30R)

(e) In the case of the influence of noise, each slave station can possibly be supplied the power and wire individually.

(f) Wire the power line as short as possible.

(g) Don't share the power with devices that generate the noise, such as inverter motor.

(h) Don't wire the power line or communication line in parallel with other lines.

(5) Connect the shield wire to the grounding terminal on the power supply side.

(6) If the monitor output is not used, take appropriate measures so that the monitor output terminals and lines are not in contact with other terminals and lines. Failure to do so may cause the product to malfunction. If this product is operated with any monitor output terminal or line short-circuited with the grounding line, this may cause the circuit to break, resulting in malfunction.

(7) Avoid unplanned dismantling of the product. We shall not warrant the product operation in cases where it has been dismantled without authorization.

(8) Avoid operating the product in places where it may be affected by direct sunlight, water or oil.

(9) If the product remains connected to its supply pressure for a long time while leaving the power turned off, the output pressure may increase to the level of the supply pressure. For safety, when there is a problem, use the valve on either the inlet or outlet side. It is recommended to set up the system for safe operation.

(10) If the power is turned off when the unit is up to control pressure, the pressure will be maintained. In this case, if you need to be in an exhaust state, lower the control pressure first and then turn off the power or use the exhaust valve. However, the maintained pressure is not guaranteed to last for very long.

(11) Since the working pressure is supposed to provide the exact control pressure, it is important for the working pressure not to drop below "Control pressure + Maximum control pressure × 0.1".
In particular, if the primary pressure is supplied for a long period of time with the secondary pressure specified in a range that exceeds 0MPa up to 12% F.S., this will shorten the life span of the product and thus the product should not be used in this way.

(12) The MEVT Series regulators may oscillate if a leak occurs to the secondary side piping. When connecting pipes to the regulator, connect them firmly to prevent leaks. Do not use the regulator for blowing or in any other application where the secondary side can be affected by back pressure. If used in such applications, the regulator will not be able to achieve the specified pressure. Moreover, a large oscillation noise will be heard and the product's durability will be greatly reduced.

(13) In the wiring of the MEVT common terminal stand type and D-Sub connector type, the power grounding line and the signal common line are used commonly. Therefore, when the MEVT-series product is driven by one PLC and D/A unit, the correct signals may not be output due to wiring depending on the circuit method of the D/A unit. Before starting the operation, always contact the PLC manufacturer.

(14) Don't supply the input signal over maximum control pressure, because an excessive input signal exerts a bad influence on the deterioration of the characteristic and also the durability.

(15) Keep the exhaust port (R) open to the air to allow the release of the exhaust into the air.

(16) When it is maintained the condition where the power is on and the working pressure isn't supplied or the condition where the power is on and the input signal is missing from the control range, the deterioration of the characteristic and also life occur. Therefore, the product should not be used in this way.

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PARECT Electro-pneumatic Regulator
COMMONTERMINAL STAND TYPE (MEVT-T11R)
D-SUB CONNECTOR TYPE (MEVT-T30R)

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1. DESIGN AND SELECTION

⚠ WARNING :

(1) With a thorough understanding of compressed air characteristics, design a pneumatic circuit.

- Where instantaneous stop holding at emergency stop is required, the same function as in the mechanical or hydraulic or electrical units cannot be expected.
- There arise pop-up, jet-out and leaking phenomena caused by compressibility and expansibility, which are air characteristics.

(2) Prior to use, always ensure that the product withstands the operating environment.

- The product cannot be used in corrosive gas, chemical liquid solvent, water, water vapor (steam) and ozone atmosphere. When a product is exposed to water droplets, oil or metallic powder, such as spatters and chips, be sure to protect it.
- No product can be used in the explosive gas atmosphere.

(3) Always give special care to the electric circuit during emergency stop, and cylinder operation, etc. during power failure.

(4) Attach a "residual pressure discharge valve" to the compressed air inlet of the equipment.

- The pressure switch controls operation so that it cannot be carried out where the set pressure is not reached.
  The residual pressure discharge valve discharges compressed air remaining inside the pneumatic circuit, to prevent accidents caused by pneumatic equipment operation due to residual pressure.

⚠ CAUTION :

(1) Note the maintenance conditions clearly in the equipment instruction manual.

- The product functions may significantly lower, depending on the operating condition, operating environment and maintenance situation, thereby safety might not be secured. If this maintenance work is conducted accurately and correctly, it is possible to exhibit the product function and performance sufficiently.

(2) Use be a constant voltage power supply.

(3) Check the leak current to avoid a malfunction caused by such leakage from other control equipment.

- The EVT may malfunction under the influence of leak current when a programmable controller or the like is used.

In case of 24 V DC:	1.8mA or less

(4) To avoid malfunction caused by electrical noise:

- Insert a line filter into the AC power line.
- Use a surge suppresser like a CR or diode in the inductive load (solenoid valve, relay and so on) to remove any noise at the source.
- Keep the MEVT series cables as far away as possible from power line for motor.
- In the case of the influence of noise, each slave station can possibly be supplied the power and wire individually.
- Wire the power line as short as possible.
- Don’t share the power with devices that generate the noise, such as inverter motor.
- Don’t wire the power line or communication line in parallel with other lines.

(5) Cautions for wiring

- In the wiring of the common terminal stand type and D-Sub connector type, the power grounding line and the signal common line are used commonly. Therefore, when multiple EVT-series products are driven by one PLC and D/A unit, the correct signals may not be output due to wiring depending on the circuit method of the D/A unit. Before starting the operation, always contact the PLC manufacturer. Additionally, when using the shield wire, connect the shield wire to the grounding terminal on the power supply side.

(6) Do not use combined with a cylinder having a substantial leakage amount such as, a crawling cylinder or an air bearing cylinder.

⚠ CAUTION :

- Avoid using a product in blowing or under the operating conditions that the back pressure is applied to the secondary side. No set pressure can be maintained, and its service life may be shortened along with a large beat sound.

(7) EVT100 arises residual pressure of 2kPa max and EVT500, 10kPa max even when the input signal is set to 0%. When 0MPa is required, take adequate measures; for example, attach a 3-way valve to the secondary side for changeover to the atmosphere.

(8) Use a valve on inlet and outlet as needed

- If the product is left as it is with the supply pressure when no power is turned ON, the secondary side pressure may increase up to the supply pressure.
  If some trouble is concerned on safety, take proper safety measures in the system; for example, use a valve on inlet or outlet.

(9) Operating Environment
Avoid using a product in the place where it is exposed direct to sunlight, water, oil or the like. Contact us when using a product that falls outside the designated specifications and specifications for special applications.

- Ambient Temperature
  Contact us when the product is used at exceeding 50℃ or a low temperature not exceeding 5℃.
- Vibration & impact
  Avoid using the product at the vibration of 50 m/s^2min. and impact of 300m/s^2min.

2. INSTALLATION

⚠ WARNING :

(1) For MEVT installation, do not use the method of supporting the MEVT with piping.

- Attach and fix the MEVT main body.

(2) Do not wash and coat the MEVT, using water and solvent.

- Some plastics parts may be damaged.
  The coating agent may block the exhaust port, causing malfunctions.

(3) Check the piping port position by the product label or nameplate, etc. for correct connections.

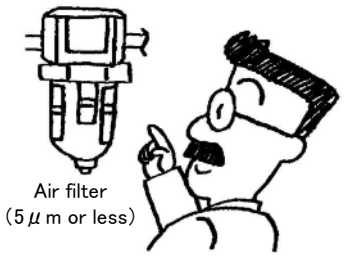
- Wrong piping connection causes abnormal operation of the actuator.

⚠ CAUTION : **When installing:**

(1) Keep a sufficient space for removal & re-installation, wiring and piping work around the EVT.

(2) Provide a pneumatic filter just in the pre-stage of the circuit in which the pneumatic equipment is used.

(3) The response time is affected by operating pressure and load capacity.
When stable reproducibility is required for this responsibility, set up a regulator in the pre-stage.



(4) Attaching position

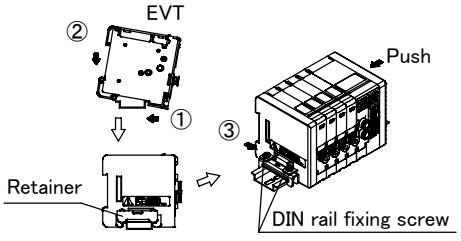
- Since the MEVT is designed for DIN rail mounting, fix the DIN rail to the attaching surface at intervals of 50 to 100mm where the total manifold mass exceeds 1kg or in the environment under vibration and impact, and then ensure that no abnormality is identified in the installation condition before use.
- There is no restriction in the attaching direction and attaching posture. Check the mounting screw doesn't get loose by resonance during operation, to avoid the manifold to fall off.
- Removal & re-installation of MEVT

  To Remove MEVT:
  Loosen the DIN rail fixing screws. (4pcs. in 2 right & left places)

  To Re-install MEVT:

  1. Set the jaw over the DIN rail from ① to ② as shown below.
  2. Press the retainer in the direction to ③ below.
  3. While pressing it so that no clearance is produced between the blocks, tighten the DIN rail fixing screws. (Recommendable tightening torque: 0.6 to 0.8N·m.)

- When the retainer jaw is not hooked firmly, air leakage and product falling-off may result: always check this mounting condition carefully.

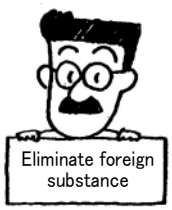


⚠ CAUTION :

When piping work

(1) Do not detach the MEVT packing bag until piping work is started.
- If the packing bag is removed before piping work, foreign substance may intrude into the interior EVT from the piping port, thus causing trouble and malfunctions, etc.

(2) In piping work, flushing is required just before connecting to the pneumatic equipment.
- Foreign substance intruding inside during piping work must not incorporate into the EVT.



(3) Make piping arrangements so that the coupling section in the piping connection part is not detached due to equipment motion, vibration and tension or the like.

(4) Release the exhaust port (R) to air for satisfactory exhaust.

(5) Do not reduce the EVT exhaust port (R) to less than the bore diameter of the piping connecting port.
The EVT exhaust port (R) will breathe due to valving element motion; therefore, foreign substance near or around the exhaust port (R) may be sucked, and where the exhaust port (R) faces upward, foreign substance may intrude thereinto.
Attach a silencer or make piping connection with the exhaust port (R) looking down.
- If no smooth exhaust is insured, the actuator will not be actuated normally. When a manifold is used, exhaust may interfere with normal operation of other EVT's.

(6) When piping connection has been completed and compressed air is supplied, take care so that no high pressure is applied suddenly.
- The piping is disconnected and the piping tube springs out, causing accidents.
- <CAUTION>: If compressed air is supplied too slowly, there may arise air leak phenomena since no sealing pressure is generated in some EVT internal sealing mechanism.

(7) When the piping connection has been completed and compressed air is supplied, be sure to check that no air is leaking from all piping connection sections.
- Apply leakage detecting solution to the piping connection part with a brush to check for air leaking.

(8) Where a nylon tube or polyurethane tube is used for piping material, exercise the following care:
- Always use a flame retardant tube in the atmosphere such that spatters scatter about.

(9) Do not throttle the input port.
- Supply pressure lowers during equipment operation, resulting in malfunctions.

⚠ CAUTION :

(10) Piping Connection

- Applicable Tube:
  Use our CKD designated tube.
  Soft nylon (F-1500 Series)
  Polyurethane (U-9500 Series)
  When a commercially available tube is used, give care to outside diameter accuracy, wall thickness and hardness. The hardness of the polyurethane tube used should be 93 deg. min. (Rubber hardness tester)
  If a tube that does not satisfy outside diameter accuracy and hardness as specified is used, the chucking force may lower, thereby causing the tube to come off and making it hard to insert the tube.

Tube Size

Outside diameter (mm)	Inside diameter (mm)	
	Nylon	Urethane
φ4	φ2.5	φ2
φ6	φ4	φ4

Outside Diameter Tolerance

Soft & hard nylon φ4, φ6	±0.1mm
Urethane φ4, φ6	+0.1mm
	−0.15mm

- Tube Bending Radius
  The tube bending radius should exceed the minimum bending radius. (Otherwise, tube detachment and air leakage may result.)

Tube bore	Minimum bending radius (mm)	
	Nylon	Urethane
φ4	10	10
φ6	20	20

- Minimum Tube Length
  The standard length of output port (A) side tube used should correspond to the tube internal volume of 1mℓ or more. (Otherwise, oscillation may result.)

Tube bore	Minimum Length (mm)	
	Nylon	Urethane
φ4	200	320
φ6	80	80

- Tube Cutting
  Using the tube cutter (AZ-1200), cut a tube vertically in the axial direction. Insertion of the tube cut aslant causes air leakage.
- Tube Connection State
  Provide the linear part as long as the outside diameter of the tube used from the joint edge part to avoid sharply bending piping at the joint insertion port. Take care so that the tube tensile force in the lateral direction does not exceed 40N.
- Applicable Blank Plug
  Always use the blank plug designated by CKD.
  Blank plug GWP□-B Series

3. OPERATION

Operating Conditions:

The pressure supplied to the electro-pneumatic regulator should be used in the pressure range from the minimum operating pressure to maximum operating pressure that is specified in "5.1 Specifications".

For supply power, use a stabilized power supply with the ripple rate 1% max. at supply voltage 24 V DC+/-10%.

The input signal used and other working conditions should be based on "5.1 Specifications".

Zero (Point) & Span Adjustment:

This product is factory adjusted for the specified control pressure output in relation to each input signal before shipment.

As a rule, no zero & span adjustment change is allowed.

If zero & span adjustments are required at customer's end, contact our nearest sales office or agent.

However, it should be understood that the zero and span adjusted product is out of warranty.

⚠ WARNING :

Air Quality:

(1) Supply only "compressed air".

(2) For compressed air, always use clean air that does not contain corrosive gas.

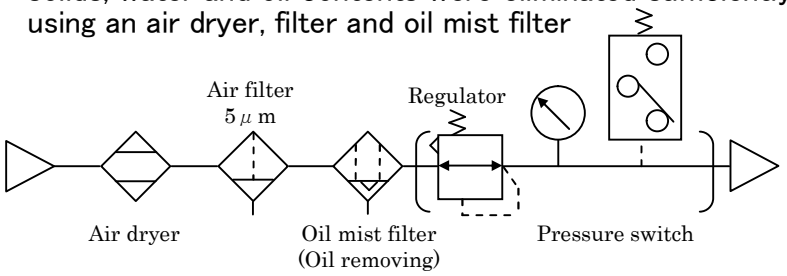
(3) Be sure to use oil-free filtrated dry air "ISO Grade 1.3.2".

⚠ CAUTION :

Air Quality:

(1) Bad quality air makes its characteristics and durability worse.

- For the pneumatic source, use cleaned air from which the solids, water and oil contents were eliminated sufficiently, using an air dryer, filter and oil mist filter



- Also, where control pressure is reduced, for example, secondary air is discharged from the exhaust port (R) via the EVT interior. If the secondary piping and load side interior are stained, the equipment will be adversely affected; for example, the characteristics are downgraded; it is, therefore, necessary to make efforts for making the interior piping cleaner.

⚠ CAUTION :

- The pneumatic equipment should be disassembled and re-assembled by the worker who got technical knowledge thereon: this work requires the level of pneumatic skill qualification class 2 or higher.
- When the pneumatic equipment is disassembled and re-assembled, read the instruction manual for the corresponding product carefully and have a thorough understanding of the contents, then start this operations work.

Miscellaneous:

(1) Avoid disassembly; otherwise, accidents may result. It should be understood that the operation after disassembly falls outside the warranty range.

(2) If the power is turned off when the unit is up to control pressure, the pressure will be maintained. In this case, if you need to be in an exhaust state, lower the control pressure first and then turn off the power or use the exhaust valve. However, the maintained pressure is not guaranteed to last for very long.

(3) Since the working pressure is supposed to provide the exact control pressure, it is important for the working pressure not to drop below "Control pressure + Maximum control pressure × 0.1".
In particular, if the primary pressure is supplied for a long period of time with the secondary pressure specified in a range that exceeds 0MPa up to 12% F.S., this will shorten the life span of the product and thus the product should not be used in this way.

(4) The MEVT Series regulators may oscillate if a leak occurs to the secondary side piping. When connecting pipes to the regulator, connect them firmly to prevent leaks. Do not use the regulator for blowing or in any other application where the secondary side can be affected by back pressure. If used in such applications, the regulator will not be able to achieve the specified pressure. Moreover, a large oscillation noise will be heard and the product's durability will be greatly reduced.

4. MAINTENANCE

⚠ WARNING :

(1) Prior to maintenance work, be sure to turn the power OFF and stop supply compressed air to ensure that no residual pressure is present.

- These operations are the conditions required for securing operational safety.

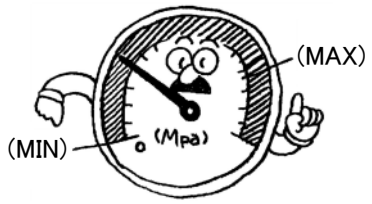
⚠ CAUTION :

(1) Carry out routine and periodic checking as planned so that maintenance control is implemented correctly.

- Unless this maintenance control is satisfactory, the product functions remarkably lower, leading to equipment malfunction and accidents, such as short service life, damage and malfunctioning.

1. Pressure control to supply compressed air

- Check to see if the set pressure is supplied.
  Check to see if the pressure gauge during equipment operation is pointing to the set pressure.



2. Pneumatic filter control

- Check to see if the bowl and element fouling condition is normal.

3. Control for compressed air leak in the piping connection part

- Check to see if the condition of the connection section especially in the movable part is normal.

4. EVT operating condition control

- Check for operation delay and check to see if the exhaust status is normal.

5. Control for pneumatic actuator operating condition

- Check to see if the pneumatic actuator is working smoothly.
  Check to see if the stopped condition at the stroke end is normal.
  Check to see if the section coupled with the load is normal.

5. PRODUCTS

5.1 PARECT Electro-pneumatic Regulator Specifications (Individual)※1

Model / Item		EVT100	EVT500
Media		Cleaned air (equivalent to ISO 1. 3. 2)	
Max. working pressure		200kPa	0.7MPa
Min. working pressure		Control pressure ＋ Max. control pressure × 0.1	
Proof pressure	Inlet side	300kPa	1.05 MPa
	Outlet side	150kPa	0.75MPa
Pressure control range		0 to 100kPa	0 to 0.5MPa
Power supply voltage		DC24V±10% (Stabilized power supply with a ripple rate of 1% or less)	
Consumption current		0.1A or lower	
Input signal (Input impedence)		0 to 10VDC (6.6kΩ), 0 to 5VDC (3.3kΩ), 4 to 20mA	
Monitor output		1 to 5VDC (Load impedance 1 kΩor more)	
Insulation resistance		100MΩ (DC500V megger) or more	
Withstand voltage		AC 1500V 1 minute	
Hysteresis	※2	0.4% F.S. or less	
Linearity	※2	±0.5% F.S. or less	
Resolution	※2	0.1% F.S. or less	
Repeatability	※2	0.3% F.S. or less	
Temperature characteristic	Zero point fluctuation	0.15% F.S. / or less	
	Span fluctuation	0.07% F.S. / or less	
Max. flow rate (ANR)	※3	2L / min	6L / min
Step response ※4	No load	0.1s or less	
	15cm³ load	0.5s or less	
Ambient temperature		5 to 50℃	
Fluid temperature		5 to 50℃	
Lubrication		Nil	
Indicator	※5	Green/Red LED	
Installation position		Free	
Working environment		No corrosive gas	
Dimensions		W14×D75×H75	
Mass (body)		80g	

※1： The above specifications are valid when the product is powered by 24±0.15VDC at normal temperature.

※2： These specifications are valid at a working pressure which is "1.1 times the maximum control pressure" (EVT100：110kPa, EVT500：0.55MPa) and control pressure is from 10 to 100%. It is also assumed that the secondary side circuit constitutes a closed circuit. If the product is used for such purposes as blowing, for example, a pressure fluctuation may occur.

※3： Working pressure：Maximum operating pressure, Control pressure：Maximum control pressure

※4： Working pressure：Maximum working pressure, Step rate：
- 50% F.S. → 100% F.S.
- 50% F.S. → 60% F.S.
- 50% F.S. → 40% F.S.

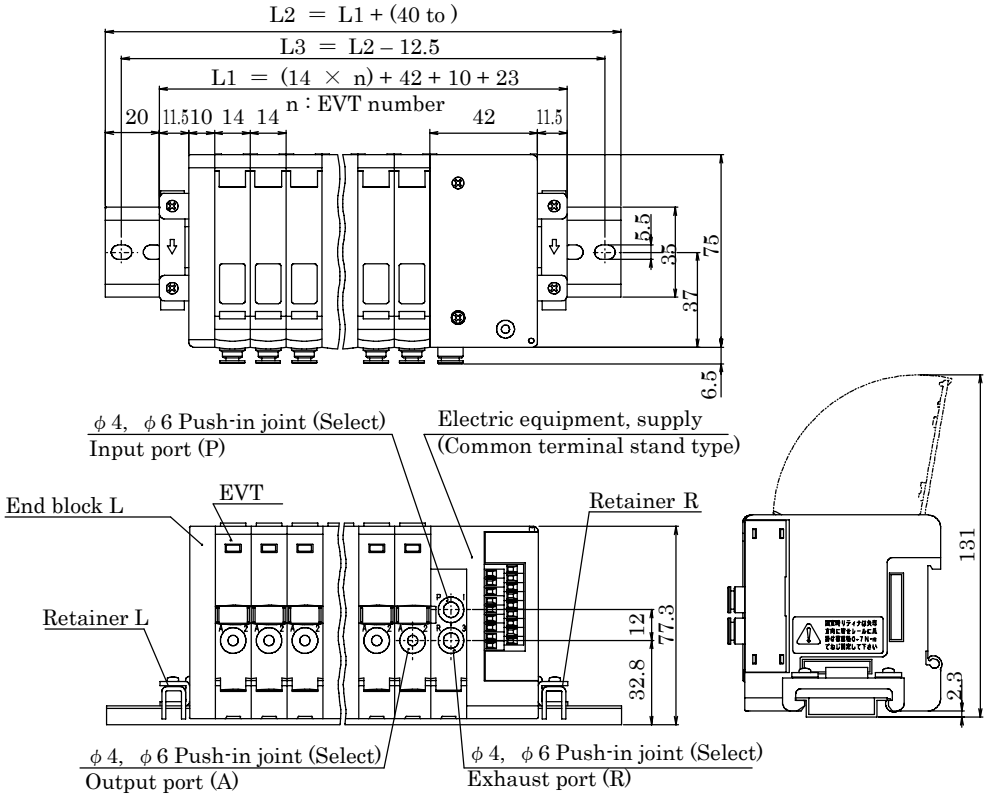
※5： Indicator is for a rough standard. Accuracy is not guaranteed.

PARECT Electro-pneumatic Regulator (Manifold specifications)

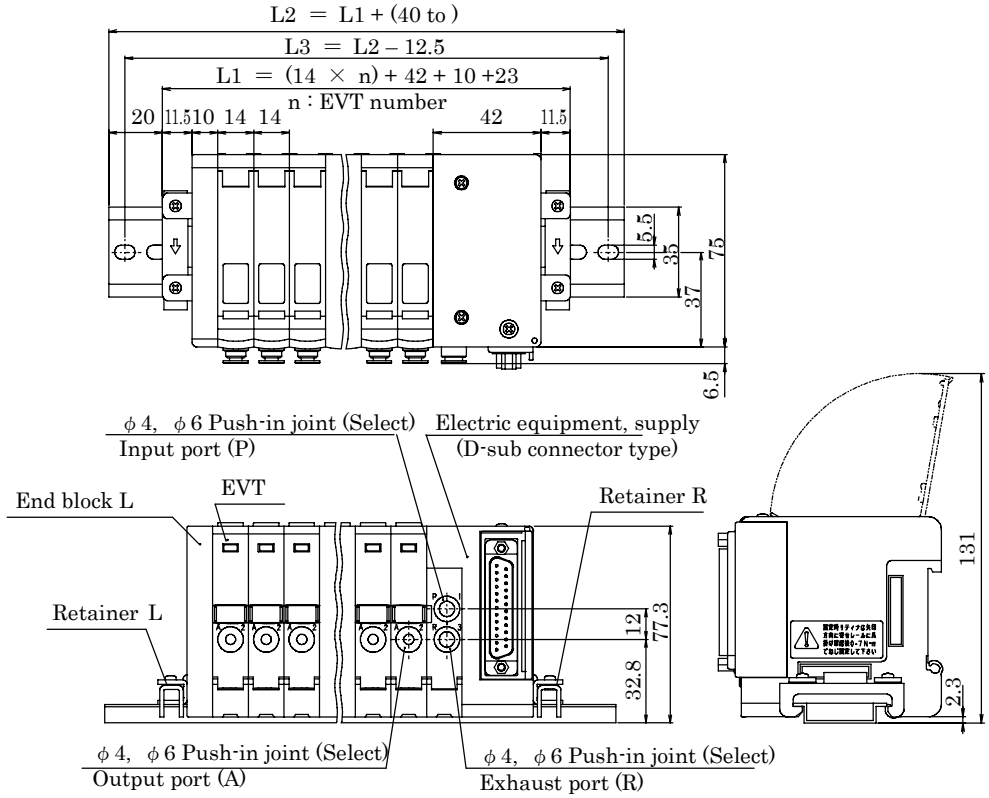
Item		Specifications
Manifold type		Block manifold
Installation type		DIN rail mount type
Air supply and exhaust		Concentrated supply and exhaust
Max. manifold number		8
Port size	Output port (A)	φ4、φ6 Push-in joint
	Input port (P) Exhaust port (R)	φ4、φ6 Push-in joint

5.2 Dimensions

1) Common terminal stand type (T11R)

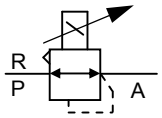


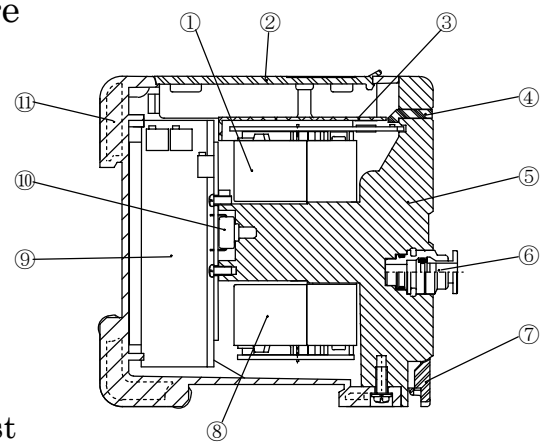
2) D-sub connector type (T30R)



5.3 Inside structure

- EVT



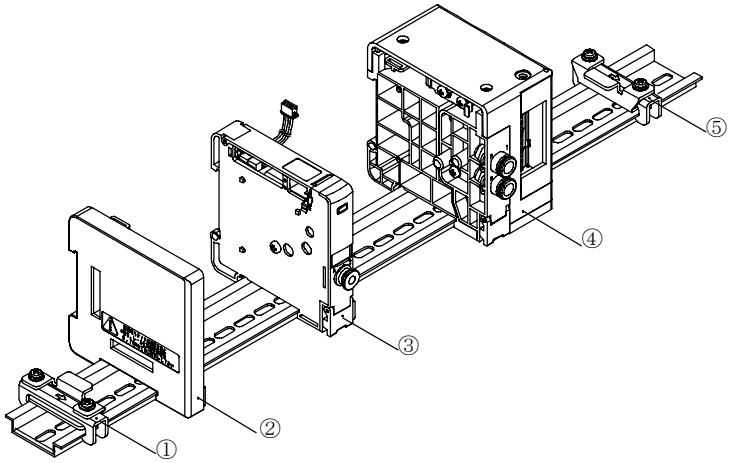


Main component list

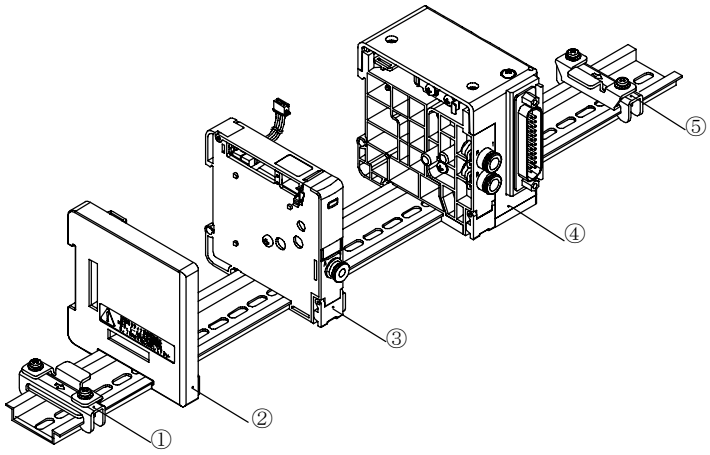
No.	Name of parts	Material	No.	Name of parts	Material
1	Valve for supply	—	7	Connecting hook plate	Polyamid
2	Wiring cover	Acryloni-trile-butadiene-styr ene	8	Valve for exhaust	—
3	Valve cover	Acryloni-trile-butadiene-styr ene	9	Controller	—
4	Indicator lens	Polycarbonate	10	Pressure sensor	—
5	Body	Polyamid	11	Case	Acryloni-trile-butadiene-styr ene
6	Push-in joint	—			

5.4 Component

Common Terminal Stand Type



D-sub Connector Type



Main component list

No.	Name of parts	Model no.	Remarks
1	Retainer L	EVT-HL	—
2	End block L	EVT-EL	—
3	EVT	EVT※00	For a single EVT, two pipe joints are included.
4	Electric equipment, supply and exhaust block	EVT-T※	
5	Retainer R	EVT-HR	

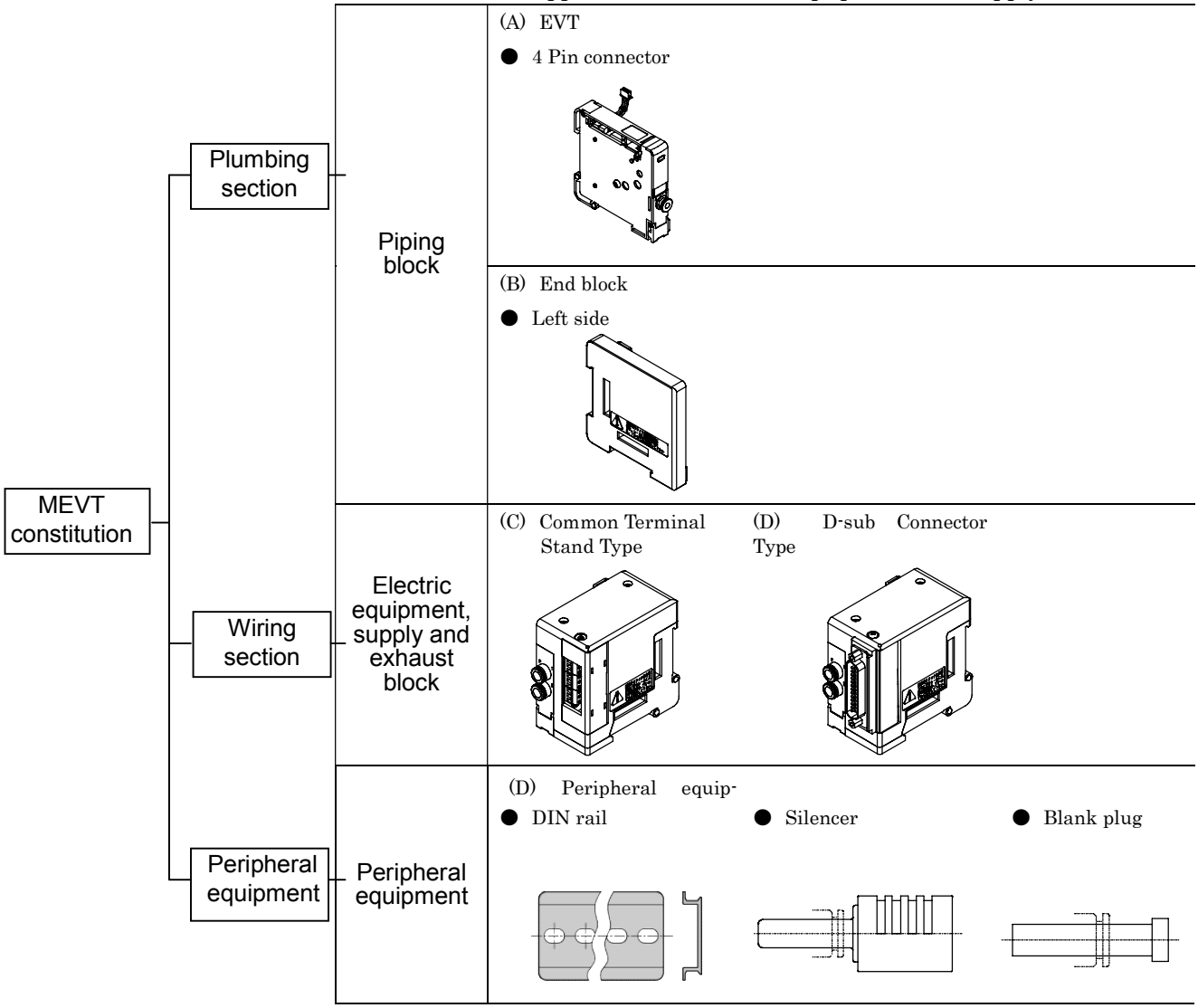
Mass

(g)

Name of parts		Mass
EVT	EVT※00	80
End block L	EVT-EL	30
Retainer	EVT-H※	25
Electric equipment, supply and exhaust block	EVT-T11R	115
	EVT-T30R	125

5.5 Block constitution

- EVT:
  ① The EVT can be installed on the DIN rails by the required number of stations. However, the number of stations is determined, depending on the kind of the slave station.
  (Refer to "PARECT Electropneumatic Regulator (Manifold) Specifications" given in Section 5.1)
  ② The EVT is called "1st, 2nd, 3rd …" from the right side with the joint in front.
  ③ REG. No. marked on the EVT wiring cover is assigned as 1, 2, 3 … from the nearer side for each connected electric equipment, supply and exhaust block.
- Electric equipment, supply and exhaust block:
  ① The EVT can be installed in the connecting part of each block freely as required.
- End block:
  ① Install the end block on the side opposite to the electric equipment and supply/exhaust block.



6. WIRING

How to wiring of electric equipment, supply and exhaust block .
There are three types of electric equipment, supply and exhaust block;
Common terminal stand type (T11R), D-sub connector type (T30R).

Cautions common to all models

⚠ CAUTION :

- Check the operating voltage.
  Always connect the product to an appropriate constant voltage power supply.
- Carry out the wiring properly.
  Improper or incorrect wiring may cause malfunction or fault.
  Secure the connector using the engagement-type fixing screws firmly so that the connected connector is not disconnected easily.
- Never connect or disconnect any connector with the power turned ON. Doing so may cause malfunction or fault. Before connecting or disconnecting the connector, shut-down the power completely.
- If the voltage drop may occur due to simultaneously powering ON of multiple product units or cable length, it is recommended to use 4 to 20mA current type input signals.
- To avoid malfunction caused by electrical noise:
  - Insert a line filter into the AC power line.
  - Use a surge suppresser like a CR or diode in the inductive load (solenoid valve, relay and so on) to remove any noise at the source.
  - Keep the MEVT series cables as far away as possible from power line for motor.
  - Absolutely use the designated line for the serial transmission type.
  - In the case of the influence of noise, each slave station can possibly be supplied the power and wire individually.
  - Wire the power line as short as possible.
  - Don’t share the power with devices that generate the noise, such as inverter motor.
  - Don’t wire the power line or communication line in parallel with other lines.

- In the wiring of the common terminal stand type and D-Sub connector type, the power grounding line and the signal common line are used commonly. Therefore, when multiple EVT-series products are driven by one PLC and D/A unit, the correct signals may not be output due to wiring depending on the circuit method of the D/A unit. Before starting the operation, always contact the PLC manufacturer. Additionally, when using the shield wire, connect the shield wire to the grounding terminal on the power supply side.
- If the monitor output is not used, take appropriate measures so that the monitor output terminals and lines are not in contact with other terminals and lines. Failure to do so may cause the product to malfunction. If this product is operated with any monitor output terminal or line short-circuited with the grounding line, this may cause the circuit to break, resulting in malfunction.

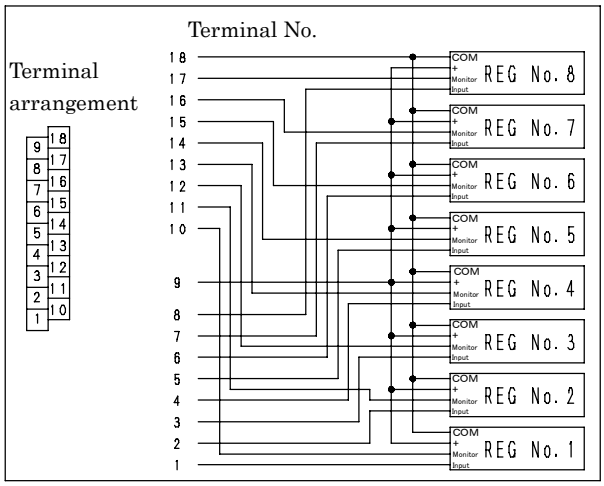
6.1 Common Terminal Stand Type (T11R)

Cautions for common terminal stand type (T11R)

- EVT station Nos. are determined from the right in the sequential order when the piping port is faced toward the operator. If the voltage drop may occur due to simultaneously powering ON of multiple product units or cable length, it is recommended to use 4 to 20mA current type input signals.
- In the common terminal stand type, the common wiring has already been processed internally. For the independent contact type PLC output unit, use the common wiring of the contact.
  For connection cables, use a stranded cable with a cross-sectional area of 0.13 to 1.31 mm^2 or a solid cable with a diameter of ϕ 0.4 to 1.3. For both cables, the sheath stripped length must be 5 to 7 mm.
  The recommended wiring screw tightening torque is 0.25 N·m

⚠ CAUTION : • Do not touch electric wiring connections (exposed live pats) : this will cause an electric shock. During wiring, keep the power off. Also, do not touch these live parts with wet hands.

Wiring and Inner connection (Max, manifold number 8)



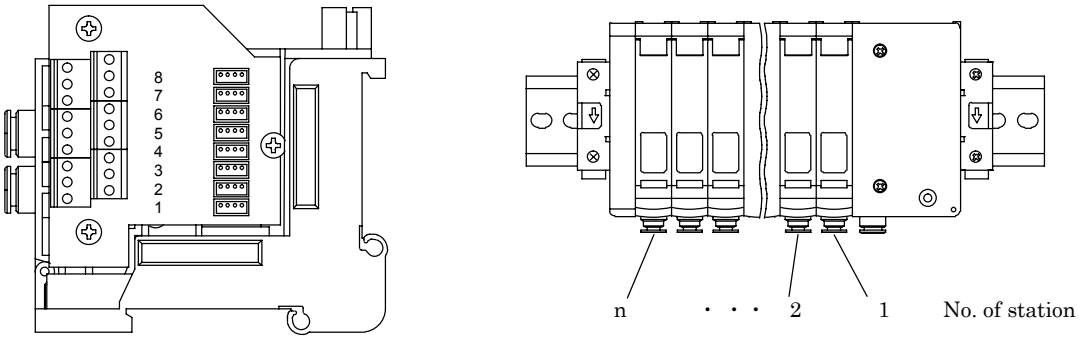
Connector pin Nos. and EVT Nos.

Setting of connector pin Nos.

Numbers shown in the internal circuit diagram described previously show the connector pin Nos. (terminal block Nos.). For convenience' sake, these Nos. are originally set by CKD.

Setting of EVT Nos.

EVT station Nos. are set from the right in the sequential order when the piping port is faced toward the operator.



Terminal arrangements of wiring type T11R

Up to eight EVT stations are connected.

In the standard wiring, EVTs are connected in the sequential order shown in the following Table without blank connector pin Nos.

(Sequential connection)

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 arrangement	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 arrangement	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

6.2 D-sub Connector Type (T30R)

A connector used for the wiring type T30R is normally called “D-Sub connector”. This connector is widely used for FA and OA units.

In particular, the D-Sub 25-pin connector is the standard connector specified in the RS-232C standard used for the personal computer communication function.

Cautions for D-Sub connector type (T30R)

EVT station Nos. are determined from the right in the sequential order when the piping port is faced toward the operator. If the voltage drop may occur due to simultaneously powering ON of multiple product units or cable length, it is recommended to use 4 to 20mA current type input signals. It is necessary

that the signal arrangements of the PLC output unit are matched with the signal arrangements on the ETV side.

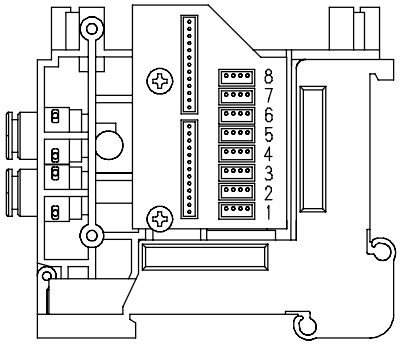
Connector pin Nos. and EVT Nos.

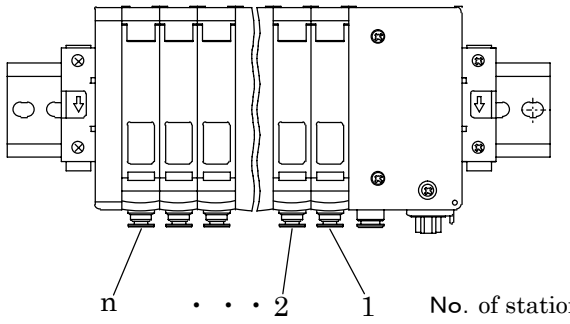
Setting of connector pin Nos.

Numbers shown in the internal circuit diagram described previously show the connector pin Nos. (terminal block Nos.). For convenience' sake, these Nos. are originally set by CKD.

Setting of EVT Nos.

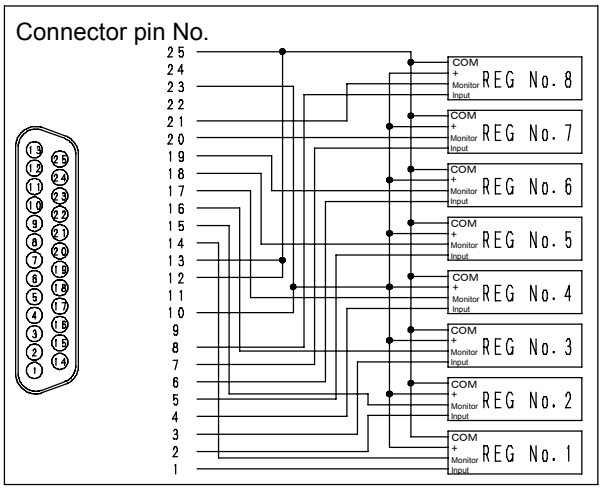
EVT station Nos. are set from the right in the sequential order when the piping port is faced toward the operator.





Wiring and Inner connection

Maximum manifold number is 8

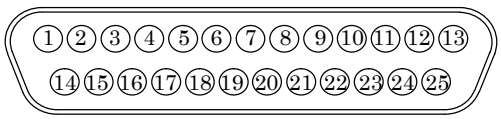


Terminal arrangements of wiring type T30R

Up to eight EVT stations are connected.

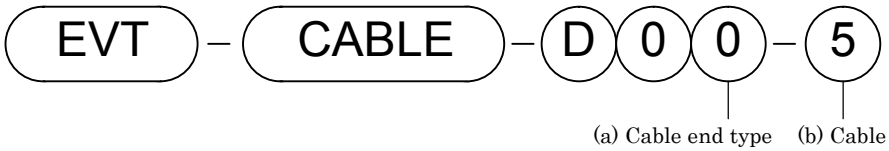
In the standard wiring, EVTs are connected in the sequential order shown in the following Table without blank connector pin Nos.

(Sequential connection)



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

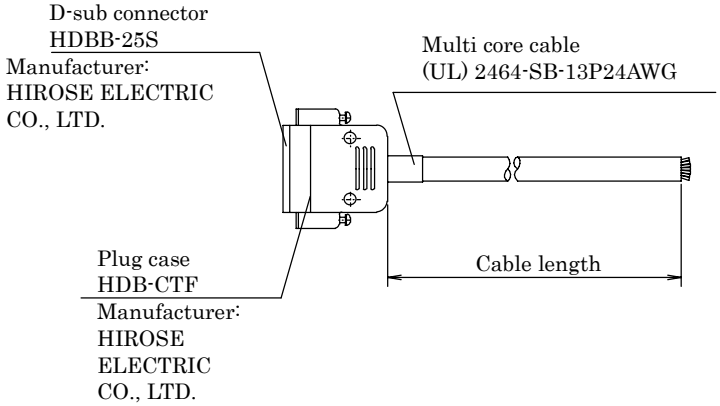
How to order for D-sub connector cable



		Name
Symbol		EVT
(a)	0	Lead wire
(b)	5	5 m

The relation between D-sub connector pin No. and lead wire

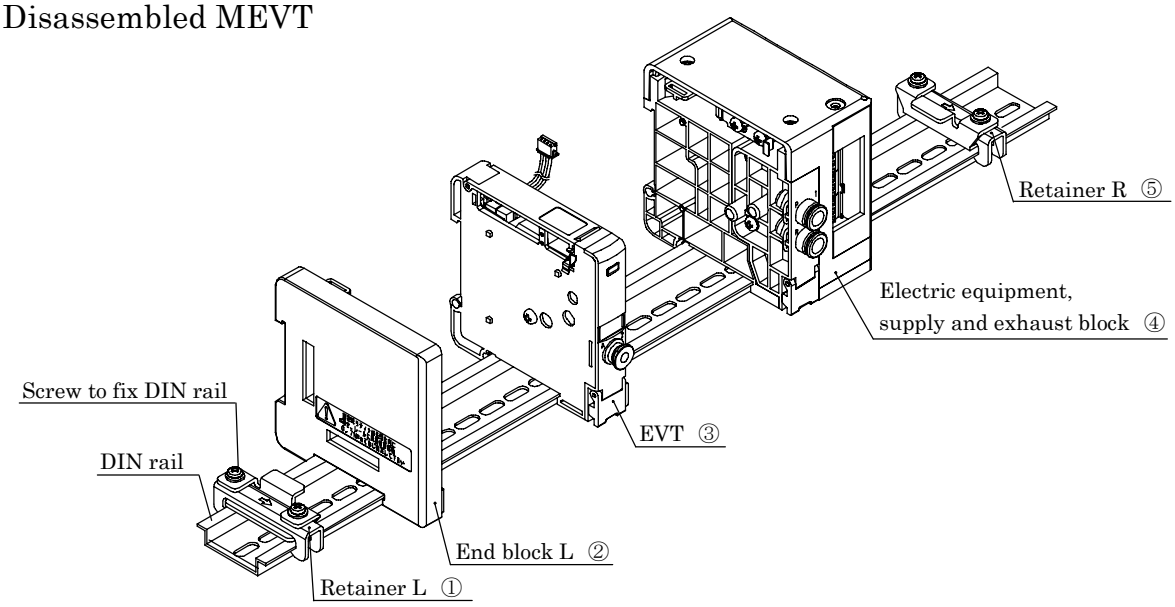
- EVT-CABLE-D00-5



Sub connector pin No.		1	2	3	4	5	6	7	8	9	10
Core identification	Insulation color	Yellow	Green	Gray	White	Yellow	Green	Gray	White	Yellow	Orange
	Dot marked number	1	1	1	1	2	2	2	2	3	1
	Dot marked color	Black	Black	Black	Black	Black	Black	Black	Black	Black	Red
Sub connector pin No.		11	12	13	14	15	16	17	18	19	20
Core identification	Insulation color	Green	Orange	Orange	Yellow	Green	Gray	White	Yellow	Green	Gray
	Dot marked number	3	1	2	1	1	1	1	2	2	2
	Dot marked color	Black	Black	Black	Red	Red	Red	Red	Red	Red	Red
Sub connector pin No.		21	22	23	24	25					
Core identification	Insulation color	White	Yellow	Orange	Orange	Orange					
	Dot marked number	2	3	2	3	3					
	Dot marked color	Red	Red	Red	Red	Black					

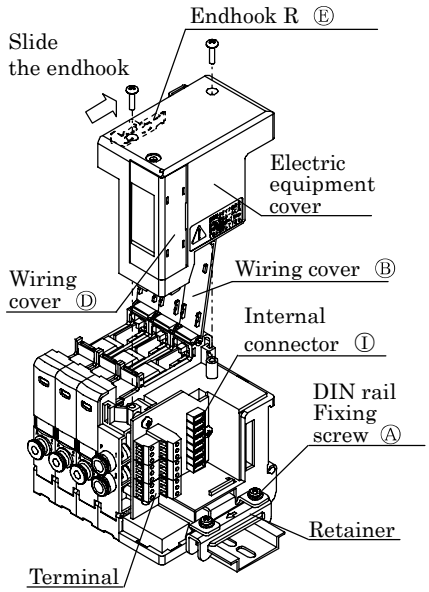
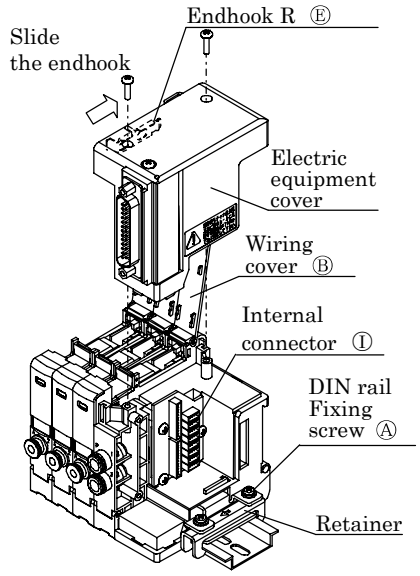
7. HOW TO EXTEND EVT

Disassembled MEVT



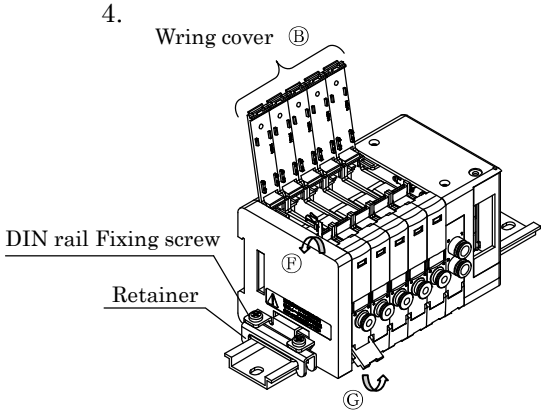
How To Extend EVT

1. Loosen screws to fix DIN rail Ⓐ.
2. Open the wiring coverⒷ.
3. For the common terminal stand type or D-Sub connector type, slide the endhook R Ⓔ to detach the hook. Next, loosen the screw of the electric equipment cover to remove it. (For the common terminal stand type, check that the wiring coverⒹ is not caught in the terminal block.)

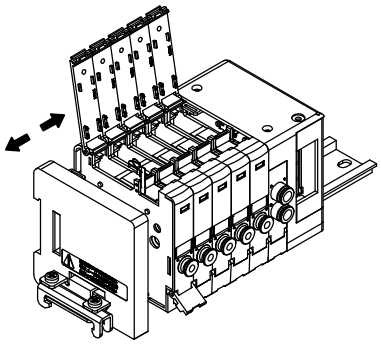
Common terminal stand type (T11R)	D-sub connector type
	

4. Unhook the connecting hook spring Ⓕ and connecting hook plate Ⓖ in the place where it is desired to increase the station to separate the blocks each other.
5. Separate the blocks in the station increasing part.

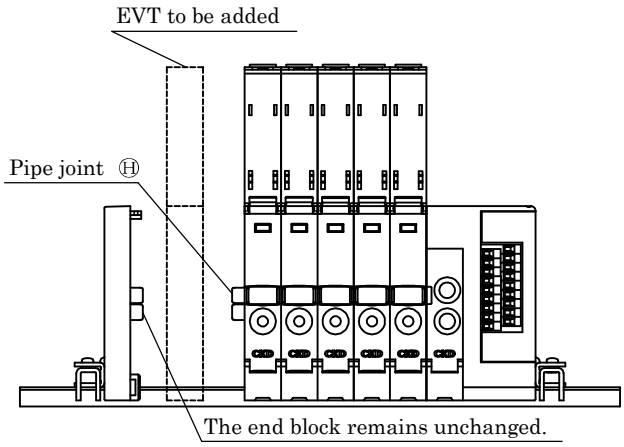
4.



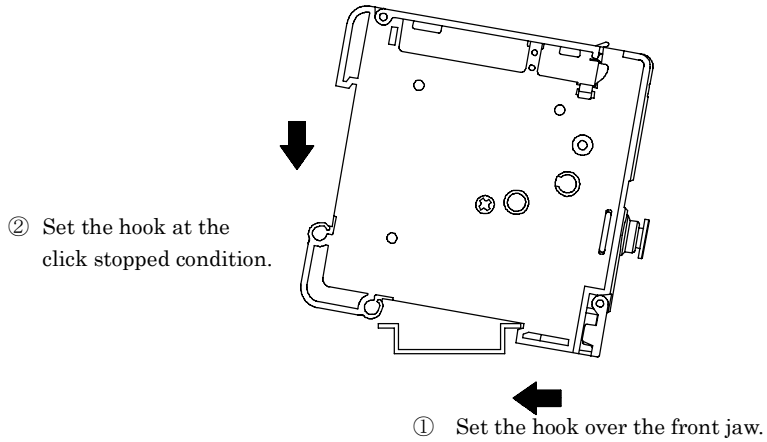
5.



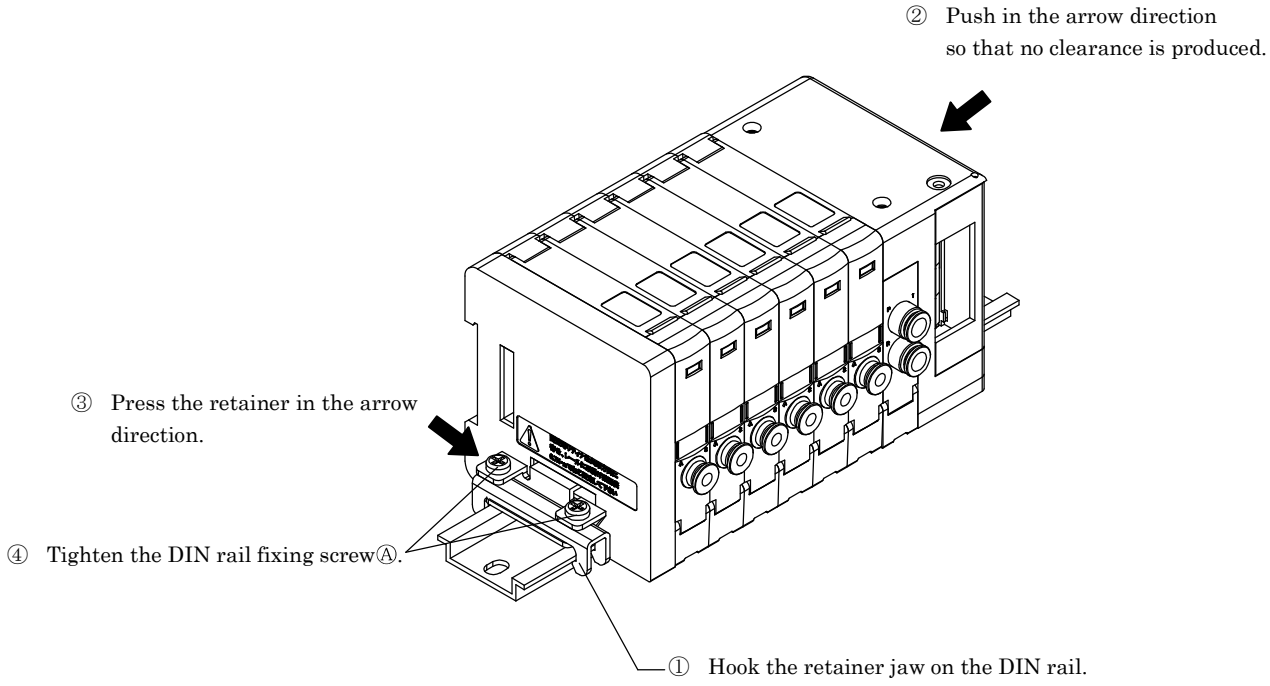
6. Insert the pipe joint Ⓗ(2pcs.) into the input (P) and exhaust (R) ports in the separated block.
   NOTE: The separation part, as shown below, is in the condition such that 4pipe joints Ⓗ(2pcs. each from both sides) are protruded.



7. Attach the added EVT to the DIN rails.



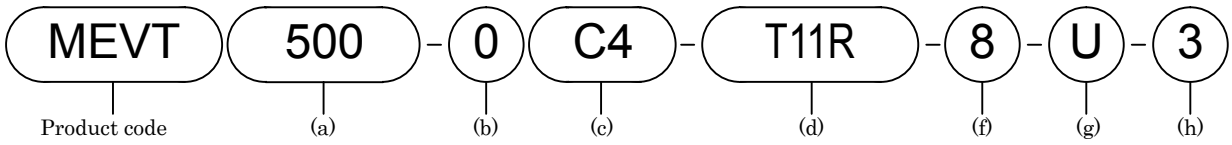
8. Press the end block so that no clearance is produced between the blocks, and hook the connecting hook spring Ⓕand connecting hook plate Ⓖ for coupling.
9. Insert the extended EVT signal line into the internal connector Ⓘ in the electric equipment, supply & exhaust block.
10. Press-fit the electric equipment cover and secure it using the screws. Return the end hook R Ⓔ to its original position.
    (Tightening torque: 0.35 to 0.5 N·m)
11. Close the wiring cover Ⓑ while giving care to signal line entangling.
12. ① Hook the retainer jaw on the DIN rail.
    ② While pressing the end block so that no clearance is produced between the blocks,
    ③ Press the retainer in the arrow direction, then
    ④ Tighten the DIN rail fixing screw Ⓐ by the recommendable tightening torque of 0.6 to 0.8N・m.



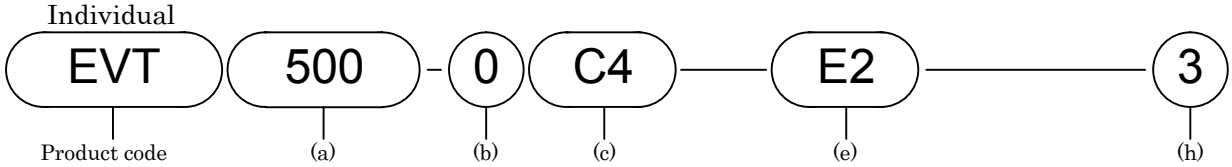
8. PRODUCT CODE

8.1 How to order

Manifold



Individual



Symbol	Description
(a) Control pressure range	
100	0 to 100kPa
500	0 to 0.5MPa
(b) Input signal	
0	0 to10VDC
1	0 to5VDC
2	4 to20mA
(c) Port size (Output port (A))	
C4	ϕ 4 Push-in joint
C6	ϕ 6 Push-in joint
(d) Electric equipment, supply and exhaust block	
T11R	Common terminal stand type
T30R	D-sub connector type
(e) Lead wire	
E2	4 Pin connector
(f) Manifold number	
1	1
to	
8	8 stations
(g) DIN rail installation	
U	Under
B	Back
(h) Voltage	
3	DC24V

⚠ Precautions in Selecting Model

Note 1: The input (P) & exhaust (R) port size should be designated in the electric equipment, supply & exhaust block.

Note 2: The input (P) & output (A) port has a built-in filter.

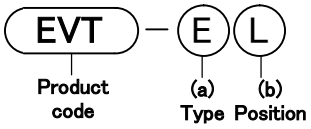
8.2 Component code

The following are component codes.

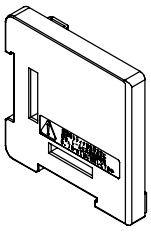
Plumbing section

A. EVT
Select codes for individual from the optional table.

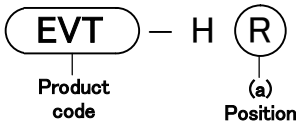
B. End block
For the common terminal stand type (T11R) or D-Sub connector type (T30R), install the end block on the side opposite to the electric equipment and supply/exhaust block.



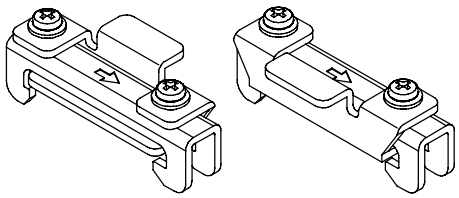
(a) Type		(b) Position	
E	Concentrated exhaust	L	Left



＜Retainer＞
Fix retainers to both sides of manifold.

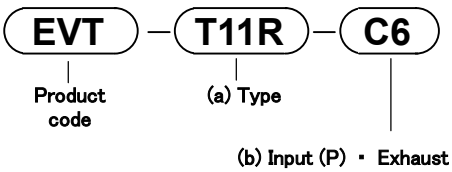


(a) Position	
L	Left
R	Right

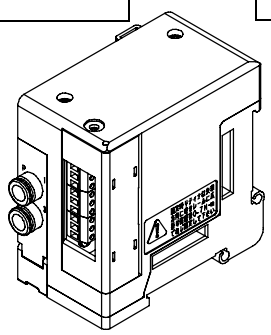


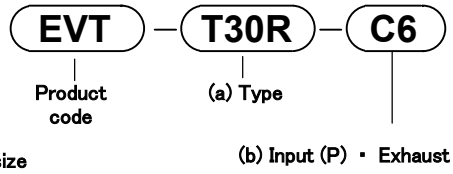
Electric equipment, supply and exhaust block (Wiring section)

C. Common terminal stand type D. D-sub connector type

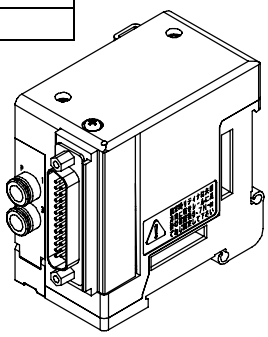


(b) Input (P) ・ Exhaust (R) port size	
C4	φ4 Push-in joint
C6	φ6 Push-in joint





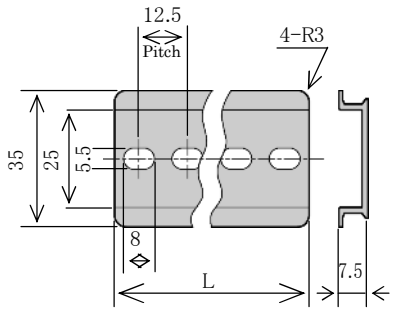
(b) Input (P) ・ Exhaust (R) port size	
C4	φ4 Push-in joint
C6	φ6 Push-in joint



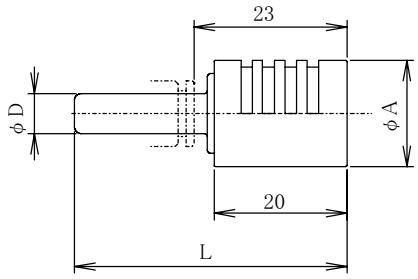
Peripheral equipment　DIN rail, Silencer, Blank plug

● DIN rail

EVT-BAA ＜Length＞

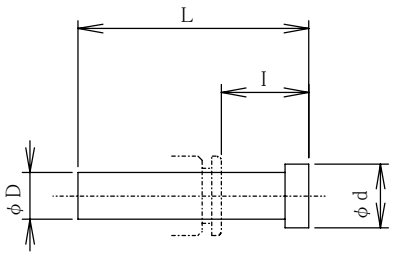


● Silencer



Product code	D	L	A
SLW-H6	6	41	16

● Blank plug



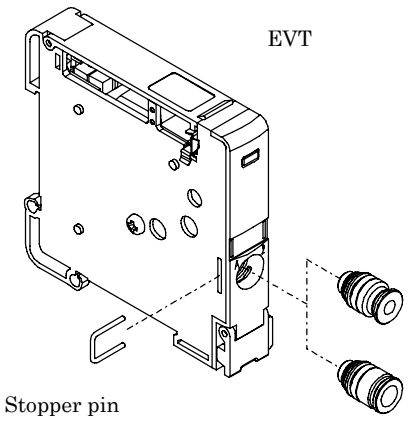
Product code	D	L	I	d
GWP4-B	4	27	9	6
GWP6-B	6	29	11	8

● Push-in joint

Model	Name of parts	Push-in joint Product code
EVT	ϕ 4 Straight type	4G1- JOINT -C4
	ϕ 6 Straight type	4G1- JOINT -C6

⚠ CAUTION： How to replace push-in joints.

In changing the push-in joint size, check the procedure and replace the joint.
It should be noted that incorrect mounting causes air leakage or the like.



① Pull out the stopper pin with a screwdriver or the like.
② Pull out the Push-in joint.
※ Take care so that the filter is not detached during this replacement.
③ Insert the joint for replacement vertically until it comes to the end.
④ Insert the stopper pin. Just pull the joint to check for mounting.