

Smart Mini Compressor

Positive Pressure Type (Compressor)
Negative Pressure Type (Vacuum pump)



Air hand and vacuum pad at the tip of the robot,

Ideal for air and vacuum sources for automatic transport robot vehicles!

Compact

The installation area for the horizontal type is
A5 size (148mm x 210mm) or less!

Easy to use

Just turn it on!

Lightweight

2.4kg

Positive pressure type (Compressor)



Vertical Type



Horizontal Type

Negative pressure type (Vacuum pump)



Vertical Type



Horizontal Type

Smart Mini Compressor



Positive pressure type (compressor)

Negative pressure type (vacuum pump)

Size comparison:

Horizontal type



■ Compared to conventional compressors (210 x 297 mm), it has an even smaller, more compact design and approximately twice the flow rate!

*Installation area (horizontal type) **144×190mm** in **A5 size or smaller!**

■ Quiet design: **50dB** below

■ Positive pressure type: Discharge flow rate **4L/min** (at 0.5 MPa), Maximum pressure **0.6MPa**

■ Negative pressure type: Maximum suction flow rate **10L/min**, the ultimate vacuum pressure - **85kPa**

■ Installation method: With rubber feet, bottom mounting, L-bracket mounting

Basic Features

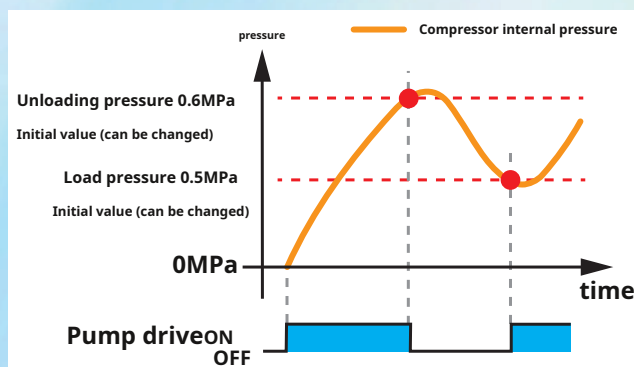
Easy to use

Simply turn on the power and positive and negative pressure will be generated, and the pump will automatically operate to reach the specified pressure.

● Positive pressure type (compressor)

Unload pressure (stop pressure): 0.6MPa

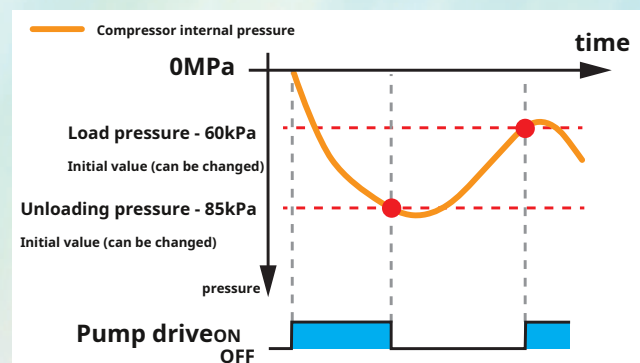
Load pressure (restart pressure): 0.5MPa



● Negative pressure type (vacuum pump)

Unload pressure (stop pressure): -85kPa

Load pressure (restart pressure): -60kPa



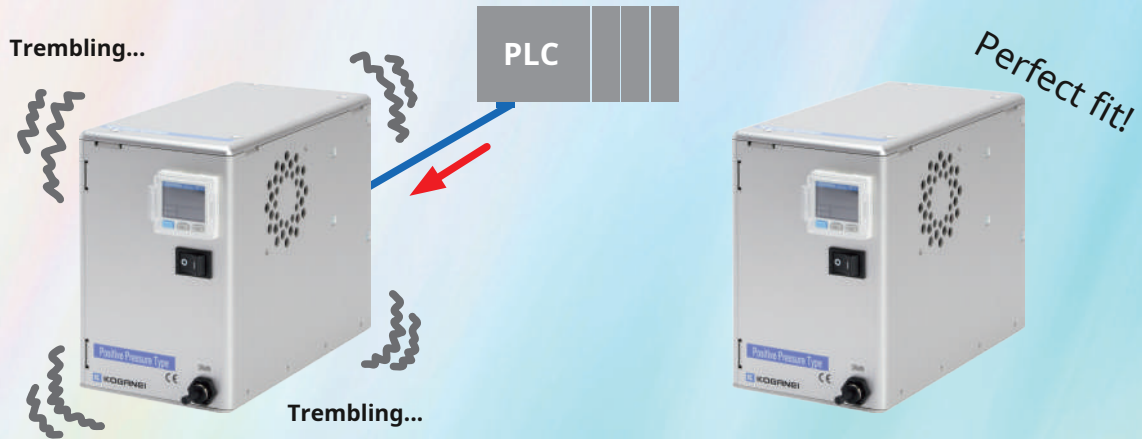
*The unload pressure and load pressure can be changed by the customer, but the set pressure should be within the specification range.

Additional Features

■ Equipped with I/O interface (I/O port)

Input Side

STOP: When ON, Motor and fan stop



Vibration propagation to peripheral devices

It is possible to suppress it!

RESTART: Turn ON to resume operation

Output side

PRESSURE: ON When pressure is above threshold

*Initial value: 0.4MPa (Can be changed by the customer)



You can determine whether your air equipment is working properly !

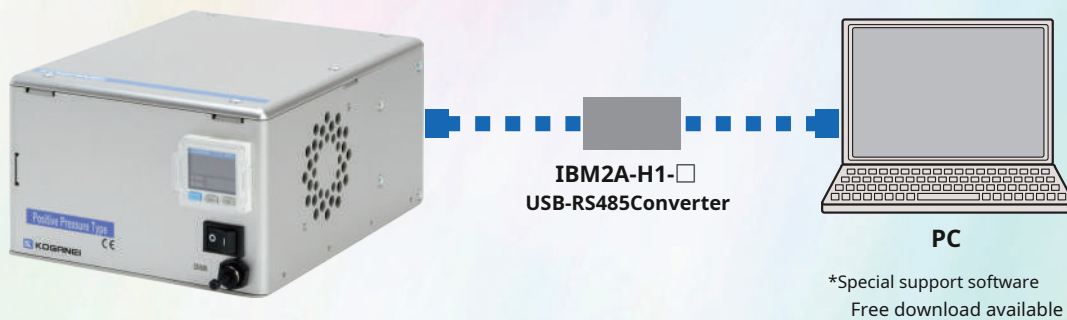
ERROR: Temperature, current, and voltage abnormality detection



* When an error occurs, the pressure gauge display flashes.

→ **Errors can be visually recognized!**

■ Equipped with communication function (communication port)



● Error history can be read

Temperature, current, voltage, and troubleshooting

● I/O control (STOP input, RESTART input) can also be performed via communication

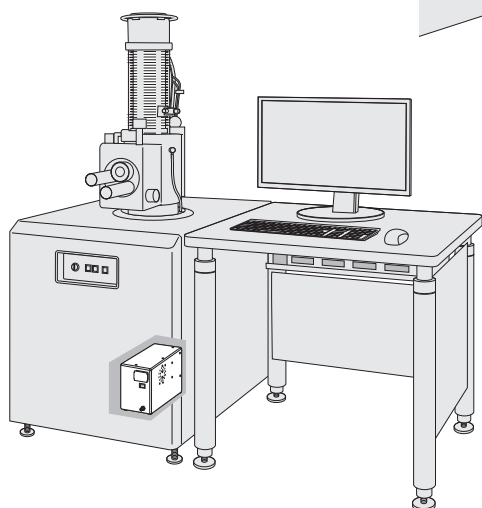
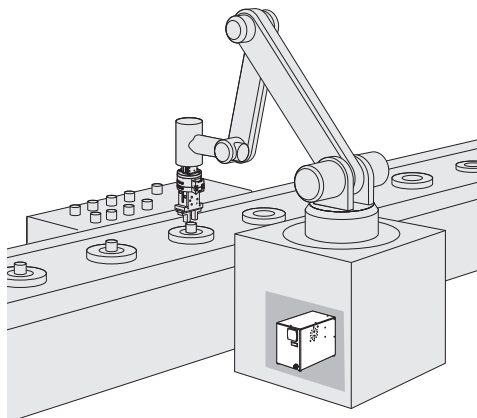
● I/O status (PRESSURE output, ERROR output) can be read via communication

● Accumulated operating time and motor operation time can be read

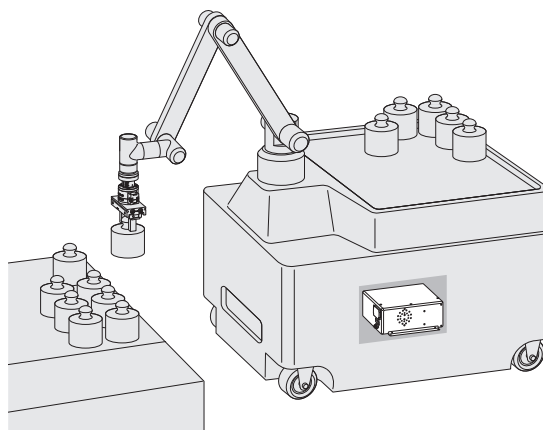
Predictive maintenance by understanding operation time

Usage Example

Air source for collaborative robot grips



Built into the analyzer



Built into the transport robot

Handling Instructions and Precautions

Installation

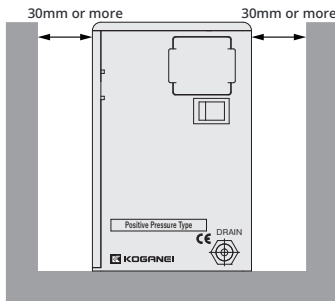
1. Please install the product on a horizontal and flat surface using one of the following methods. [Installation Method]

- ① Bottom Mounting: Use the M3 depth 4 on the bottom of the product for fixation. (Tightening torque: 0.63 [N · m])
- ② Rubber feet (-G): If rubber feet are selected, install them on a flat, stable surface to prevent rattling.
- ③ L-shaped bracket (-L): If an L-shaped bracket is selected, use the attached L-shaped bracket to secure it. (Tightening torque between the product and the L-shaped bracket: 0.63 [N · m])

Note 1: Please install the product with the bottom surface facing down.

2: For fixing the product, use the attached bolts or bolts with a thread depth of less than or equal to the specified depth. Using long bolts may damage internal components.

2. Ensure sufficient space for installation.
3. Ensure that the product's ventilated surface is at least 30mm away from the wall and that the ventilation holes are not blocked. If the ventilation space is not secured, ventilation will not be possible, the internal temperature will rise, and a significant reduction in lifespan will result.



4. Positive pressure type (compressor) does not have a filter or other filtration device and pressure regulating equipment inside. Also, since drain (moisture) is generated, when using compressed air, please install a moisture separator, filter, and regulator.

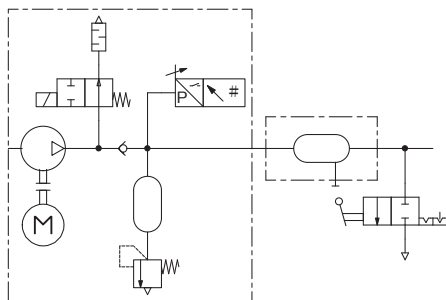
※Recommended configuration: Moisture separator
 \ IBCY30 \ Filter & Regulator \ FRZB30

※Please install in the order of compressor, moisture separator, and filter & regulator.

5. Please be sure to attach a filter to the suction port side of the negative pressure type (vacuum pump). If a filter is not used, debris and dust will enter the pump, leading to functional failure in a short period, rapid performance degradation, and reduced lifespan.

※Recommended type: Filter VLF050

6. Please be sure to provide a residual pressure exhaust mechanism on the OUT (Vacuum) side of the compressor and vacuum pump.



Wiring

1. Power cord connection
 [If using a DC power supply]
 • Please use the following power cable.

Model: SMPKP-D1L (1m)

Model: SMPKP-D3L (3m)

• Connect the rose wire to a DC24V (22~27V) power supply. Connect ensuring correct polarity.

<Power Cable Signal Table>

No.	Signal Name	Line Color
1	24V	White
2	0V	Black

Insert the plug fully into the product's power input jack. An insecure connection may cause electric shock or leakage.

[When using AC power]

Use the following AC adapter.

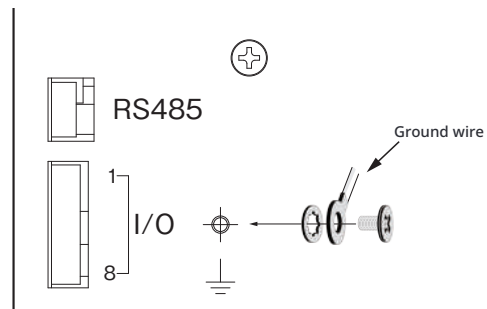
Model: SMPKP-AD

• Please insert the plug fully into the product's power input jack. An insecure connection may cause electric shock or leakage.
 • After inserting the plug into the power input jack, connect it to the AC power supply (AC 100-240V).

2. Grounding Wire Installation

To ensure noise immunity, please attach a grounding wire. (M3 screws with washers, tightening torque: 0.63[N·m], please prepare the ground wire by the user.)

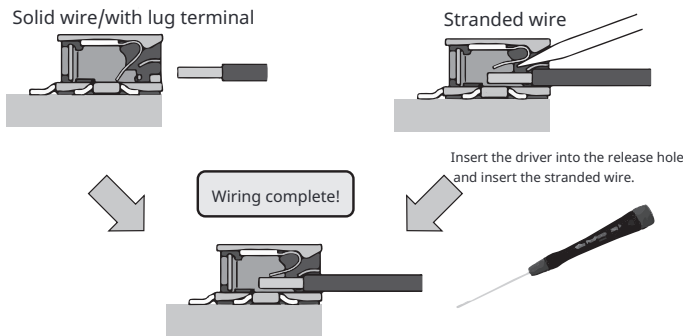
※A ground wire of AWG16 to 18, less than 2m is recommended.



3. I/O Cable Installation

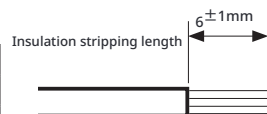
Customers who use the I/O function should insert the I/O cable as follows.

Note: Please prepare the I/O cable yourself.



Compatible wire

Single wire	0.14~0.5mm ²
Stranded wire	0.2~0.5mm ²
Rod terminal	0.25~0.34mm ²
AWG	26~20



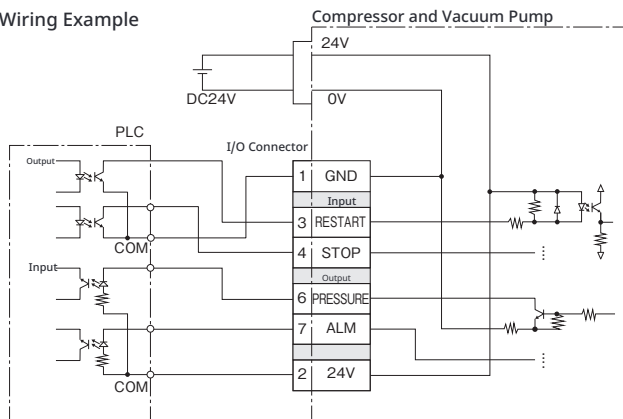
Note: Please do not solder the spare wire. It may cause contact failure.

I/O Connector Signal Table

NO.	Signal Name	Input & Output	Description
1	GND	-	Power Supply
2	24V	-	Power Supply
3	RESTART	Input	Start Signal
4	STOP	Input	Stop Signal
5	N.C.	-	Not Connected
6	PRESSURE	Output	Threshold Reached Output
7	ALM	Output	Alarm Output
8	N.C.	-	Not Connected

※The I/O connectors of the product are No.1 on the top and No.8 on the bottom.

• Wiring Example



*For details regarding I/O, please refer to the instruction manual.

Piping

1. The piping port for the compressor and vacuum pump is designed for a quick connector for a tube with an outer diameter of 6mm.

Note 1: Please use a tube that has no scratches on the outer surface. If it gets scratched after repeated use, please cut off that part.

2. Please do not bend or twist the tube excessively near the fittings. This can cause air leaks. The minimum bending radius for nylon and urethane tubes is as shown in the table below.

Tube Size	Minimum Bending Radius	
	Nylon Tube	Urethane Tube
φ6	30	15

3. Please do not use extremely soft tubes as they significantly reduce tensile strength.

4. When attaching or detaching the tube, always stop the air supply. Also, make sure that all air in the piping has been completely exhausted before proceeding.

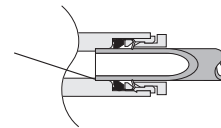
2. Tube attachment and detachment

※ Always turn off the power switch before attaching or detaching the tube, and use the residual pressure exhaust mechanism to release the air.

Precautions for tube attachment

- 1 Please confirm that the cut surface of the tube is cut at a right angle, that there are no scratches on the outer diameter of the tube, and
- 2 that the tube is not oval. When attaching the tube, if the tube is not inserted all the way to the tube end, it may cause leakage.

Tube End



- 3 After installation, please confirm that the tube cannot be pulled out.

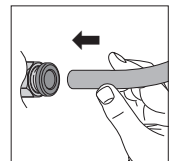
Precautions for tube release

- 1 When releasing the tube, please ensure that the pressure inside the compressor is zero.
- 2 Please push the open ring evenly all the way in and pull the tube towards you. If the push is insufficient, it may not come out or the tube may be damaged, leaving shavings inside the fitting.

Tube Attachment and Detachment Method

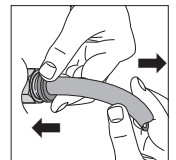
• Tube Installation

The quick fitting locks the tube in place simply by inserting it all the way to the tube end, and the elastic sleeve seals the outer circumference of the tube.



• Tube Removal

When removing the tube, press the open ring to open the lock claw, and it will be possible to pull out the tube.



Always turn off the air before removing it.

3. Drain port sealing

Please insert the sealing plug or push-button valve (φ4 tube prepared by the customer) into the drain port. (A sealing plug is inserted at the time of shipment.) If the drain port is not sealed, the pressure will not increase.

* There is no drain port for negative pressure types (vacuum pumps).

Handling Instructions and Precautions

Operation

1. Before operation, please confirm that the piping and wiring are properly done.
2. The positive pressure type (compressor) will light up the pressure switch when the power switch is turned ON, and the pressure display value will rise. When the pressure inside the compressor reaches 0.6MPa, it will automatically stop (unload). When the compressed air is consumed and the pressure inside the compressor drops to 0.5MPa, it will automatically restart (load). Note: If the consumption of compressed air exceeds the capacity of the compressor, it will operate continuously.

Note: When the consumption of compressed air exceeds the capacity of the compressor, continuous operation will occur.

- ※ The above load pressure and unload pressure are initial values. They can be changed according to the settings of the pressure switch. For details on the settings, please refer to the instruction manual. (Unload pressure: Hi-1, Load pressure: Lo-1)
3. When the power switch of the vacuum type (vacuum pump) is turned ON, the pressure switch will light up, and the pressure display value will drop. When the pressure inside the vacuum pump reaches -85 kPa, it will automatically stop (unload). When air is drawn in, the pressure inside the vacuum pump will rise, and when it reaches -60 kPa, it will automatically restart (load).

Note: If the air intake exceeds the capacity of the vacuum pump, it will operate continuously.

* The above load pressure and unload pressure are initial values. They can be changed according to the settings of the pressure switch. Please refer to the instruction manual for details on the settings.

(Unload pressure: Hi-1, Load pressure: Lo-1)

* In high altitude locations or due to atmospheric pressure fluctuations, it may not reach the desired vacuum pressure.

. In that case, please change the unload pressure using the pressure switch.

4. When the power switch is turned OFF, the device will stop operating.
Note: Even after stopping operation, there is residual pressure in the internal tank, piping, etc. of the compressor and vacuum pump, so please be careful.
5. If a large amount of compressed air or vacuum is temporarily required, it is effective to add an external air tank (KOGANEI type: DPT).
6. If a system abnormality occurs, an alarm will be generated and the drive unit will stop. At that time, the pressure gauge display will blink. However, the fan will not stop in case of a temperature abnormality. If the abnormality is resolved by turning the power OFF/ON, the alarm state will be released.

※If an alarm occurs, please remove the cause before restarting. For details, please refer to the instruction manual.

7. By using I/O, the following additional functions can be utilized.

① PRESSURE output: Output when the pressure exceeds the threshold (0.4MPa)

※This serves as a standard for whether the air equipment can operate normally.

※ The threshold values mentioned above are initial values. They can be changed according to the settings of the pressure switch. Please refer to the instruction manual for details on the settings. (Threshold pressure: P-2)

②ALM output: Output when an alarm occurs

※ Please refer to the instruction manual for details.

③STOP Input: Stop motor and fan operation at any time

※This is effective when you want to temporarily stop the product's vibration. However, since it does not operate even below the load pressure, the pressure will not increase.

④RESTART Input: Restart operation at any time

※Cancels the STOP state and alarm state, and returns to the normal state.

※If an alarm occurs, please eliminate the cause and restart.

8. The following additional functions can be used when using communication.

- ① I/O functions can also be used via communication
- ② Error history reading
- ③ Error history initialization
- ④ Cumulative operating time, motor operating time reading
- ⑤ Version reading

※We also provide free support software.

Draining

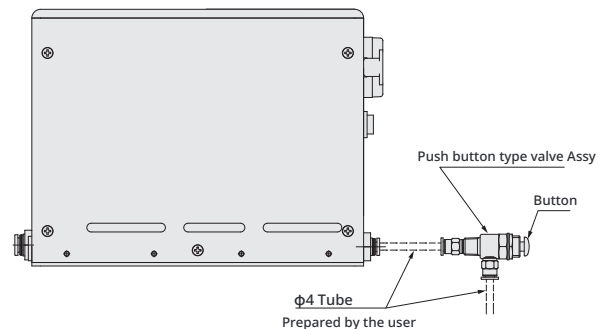
〈Positive pressure type (compressor) only〉 Drain accumulates in the piping inside the compressor. Please drain it regularly.

1. In the case of a sealing plug attached (drain port specification: unmarked)
Sealing plug type: UP4 (1 piece) is inserted into the drain port. The drain can be opened by removing the drain port plug.

When removing the plug, always release the pressure and confirm that the secondary pressure is atmospheric before proceeding. After draining, always return the plug to its original position.

2. Push-button valve type (Drain port specification: -V)
Push-button valve type: 2P (1 pc),
Fitting type: TS4-M5M (2 pcs) Assy is attached.
Pressing the button on the push-button valve will allow you to drain the condensate.

Note that if the button is pressed when the secondary side is not at atmospheric pressure, air and condensate will rush out, lowering the pressure on the secondary side.



※The negative pressure type (vacuum pump) does not generate drainage, so there is no drain port.

Smart Mini Compressor



Specification

Positive pressure type (compressor)

Item	Model	SMPP4Y	SMPP4T
Configuration Type		Horizontal	Vertical
Maximum Pressure		0.6MPa	
Exhaust Flow Rate		4.0L/min (ANR) (at 0.5MPa)	
Control Pressure ^{Note 1} (Unloading / Loading)		0.6/0.5MPa ^{Note 2}	
Noise ^{Note 3}		50dB	
Pipe Port		Quick Coupling for Outer Diameter ϕ 6mm Tube	
Mass		2.4kg	
Ambient Temperature Range		5 ~ 40°C (no condensation or freezing)	
Input Voltage		DC24V (switching power supply available) ^{Note 4}	
Rated Current		2.7A (instantaneous 5A)	
Power Supply Specifications		AC Adapter / DC Power Cable	

Note 1: When the internal pressure reaches the unload pressure, the compressor will stop temporarily and will restart when it drops to the load pressure (restarting pressure).

Note 2: Initial value. User settings can be changed.

Note 3: This is the value under our measurement conditions. Measured at a position 1m away from the front (with the pressure display monitor facing the front). Depending on operating and installation conditions, the values may be larger than those stated.

Note 4: Please use the input voltage in the range of 22V to 27V.

Negative pressure type (vacuum pump)

Item	Model	SMPV4Y	SMPV4T
Configuration Type		Horizontal	Vertical
Arrival vacuum pressure ^{Note 1}		- 85kPa	
Maximum suction flow rate		10L/min (ANR)	
Control Pressure ^{Note 2} (Unloading / Loading)		- 85 / - 60kPa ^{Note 3}	
Noise ^{Note 4}		50dB	
Pipe Port		Quick Coupling for Outer Diameter ϕ 6mm Tube	
Mass		2.4kg	
Ambient Temperature Range		5 ~ 40°C (no condensation or freezing)	
Input Voltage		DC24V (switching power supply available) ^{Note 5}	
Rated Current		2.7A (instantaneous 5A)	
Power Supply Specifications		AC Adapter / DC Power Cable	

Note 1: At standard atmospheric pressure (1013hPa)

Note 2: When the internal pressure reaches the unload pressure, the compressor will temporarily stop and will restart when it rises to the load pressure (restarting pressure).

Note 3: Initial value. User settings can be changed.

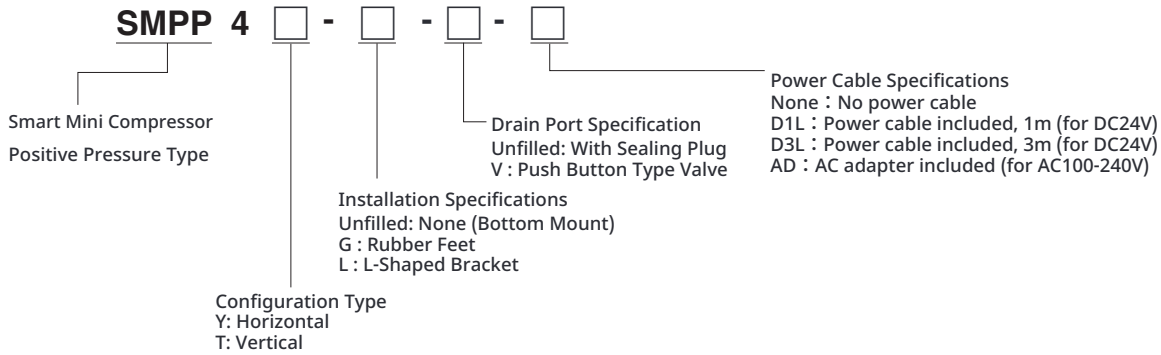
Note 4: This is the value under our measurement conditions. Measured at a position 1m away from the front (with the pressure display monitor facing the front). Depending on operating and installation conditions, the values may be larger than those stated.

Note 5: Please use the input voltage within the range of 22V to 27V.

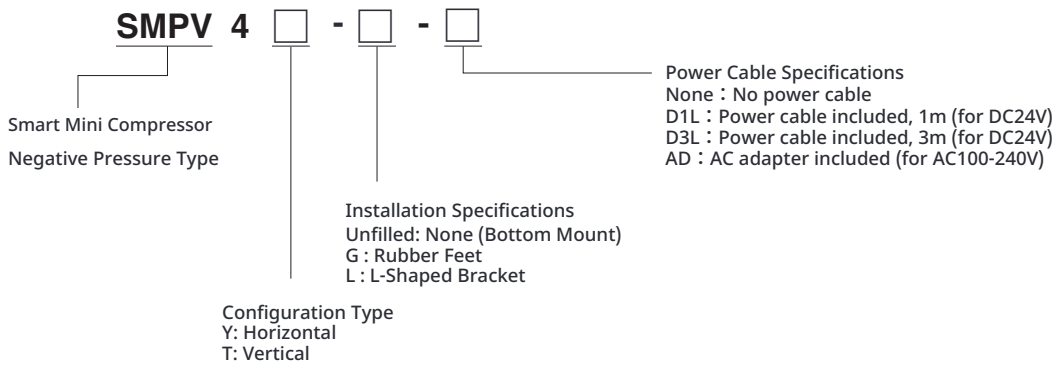
Order Symbol

Main Body Type

Positive Pressure Type (Compressor)

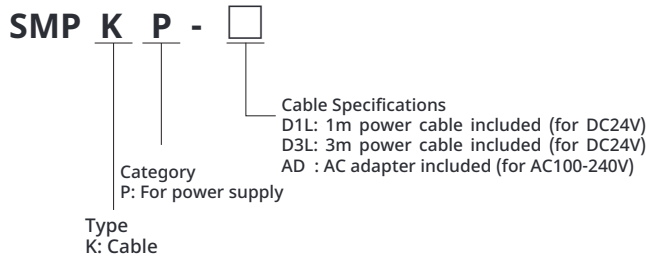


Negative Pressure Type (Vacuum Pump)

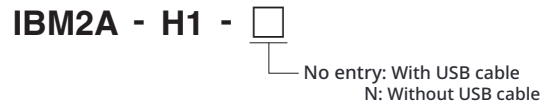


Additional Parts

Power Cable

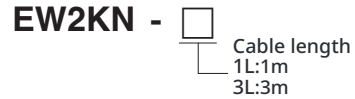


Communication Cable (USB-RS485 Converter)



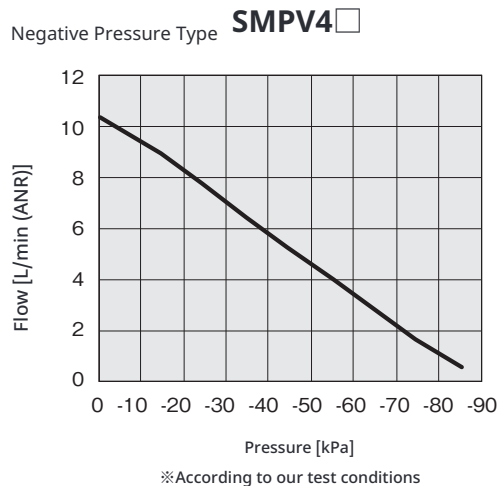
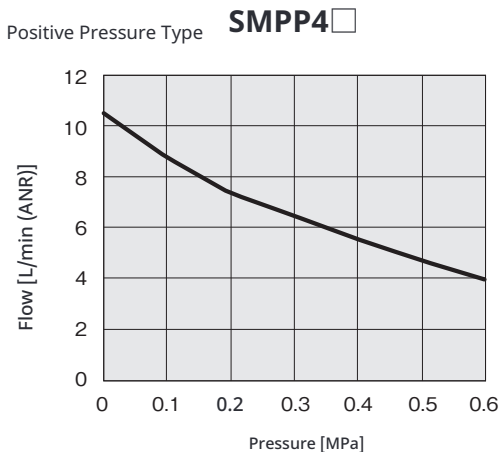
*Please use it when communicating with a computer or similar device.

(For RS485 communication, bare wire)

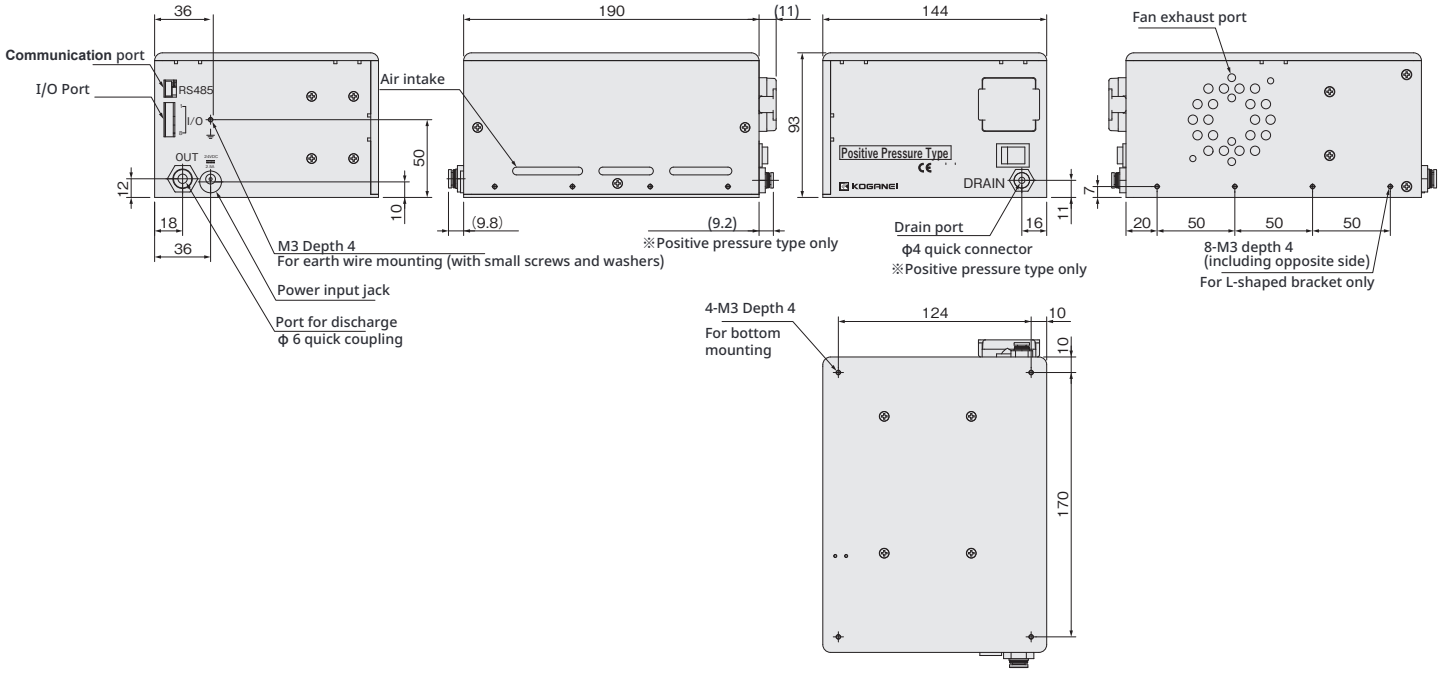


※Please use this when communicating with PLCs, etc.

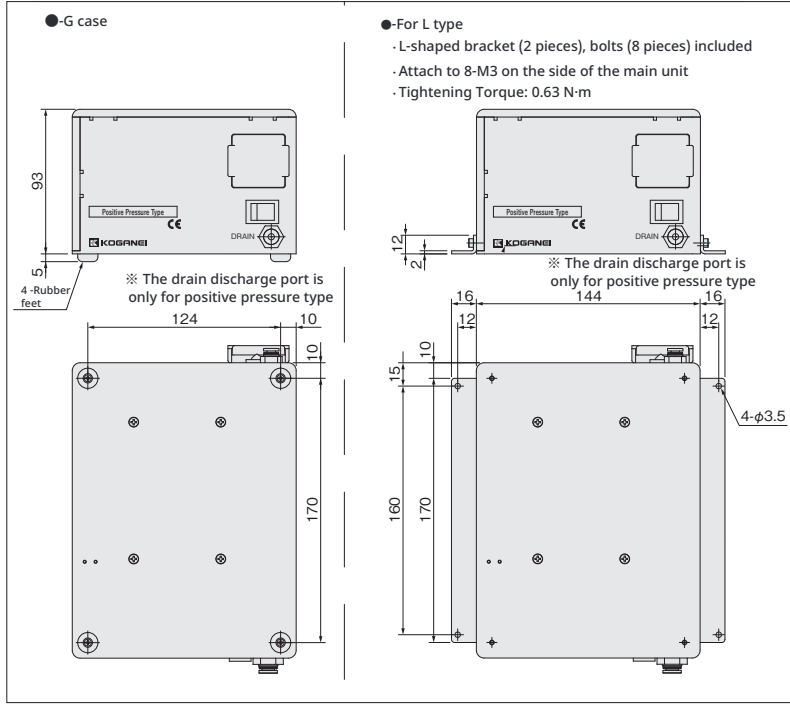
Flow Characteristics



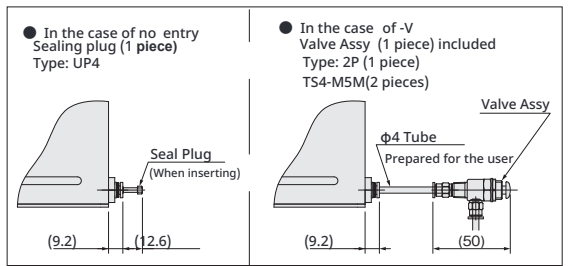
SMPP4Y SMPV4Y (Landscape)



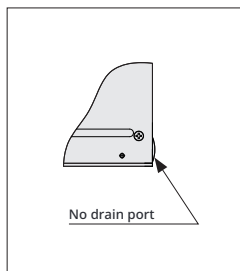
Installation Specifications



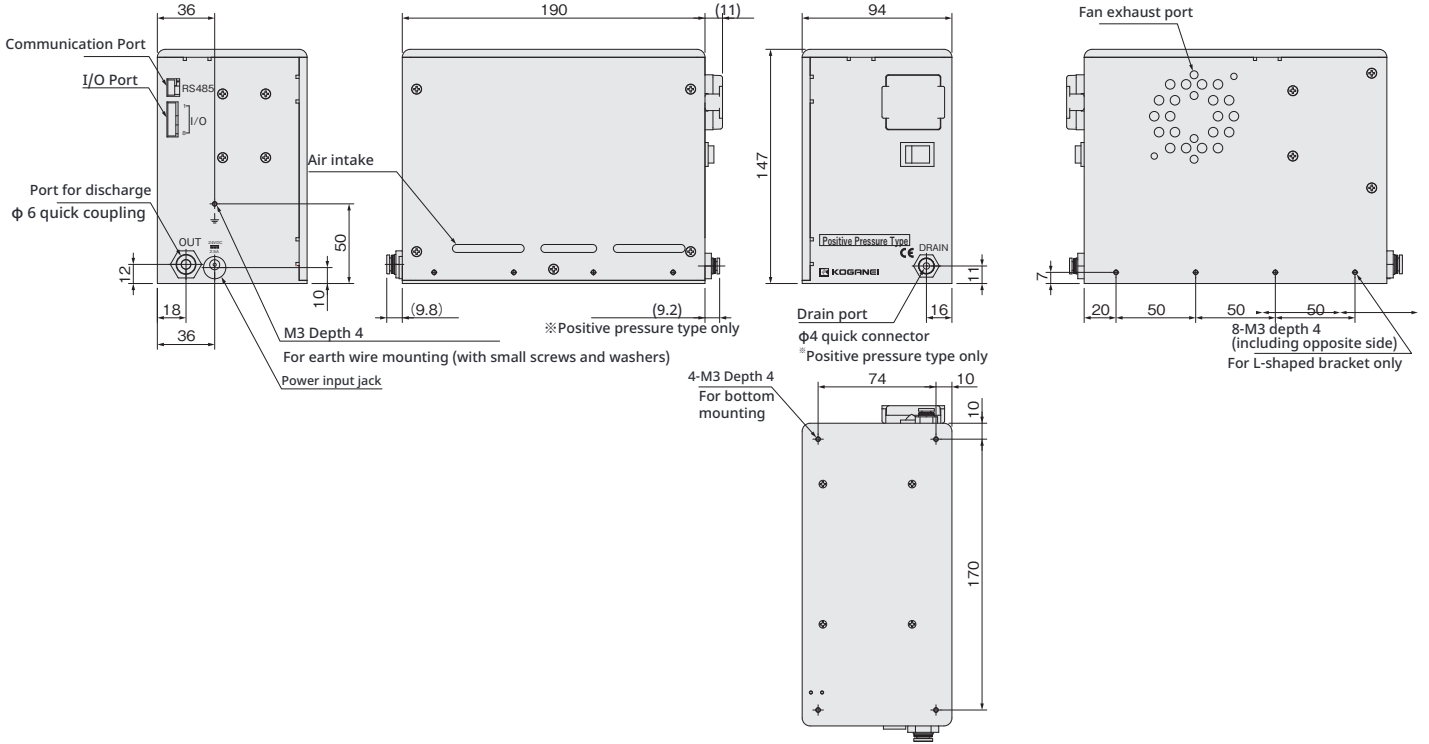
Drain Port Specifications (Positive Pressure Type Only)



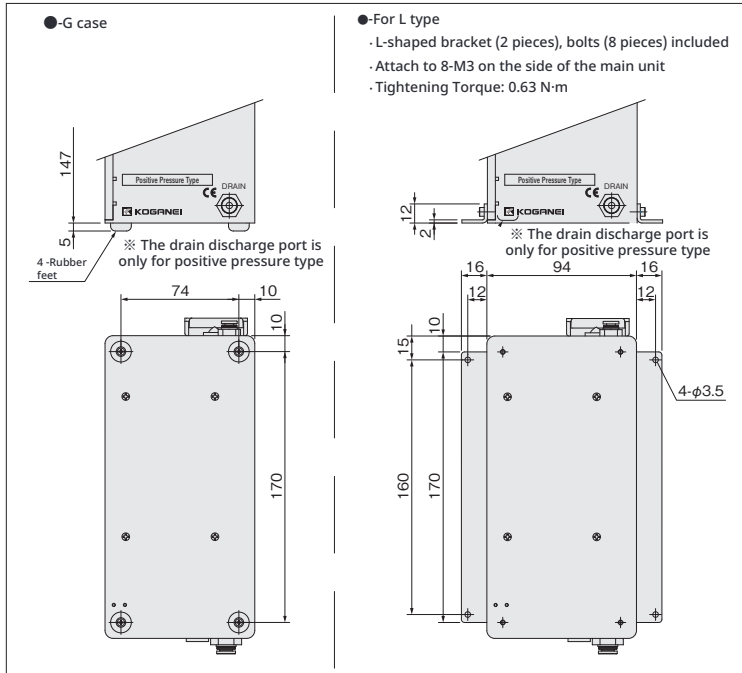
Appearance of Negative Pressure Type



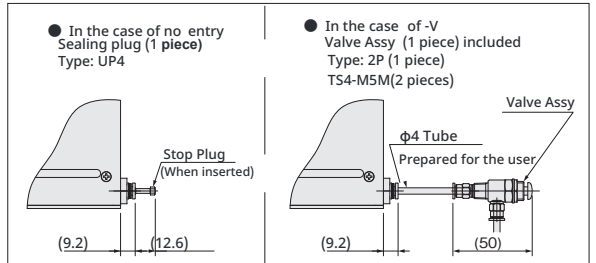
SMPP4T SMPV4T (Vertical)



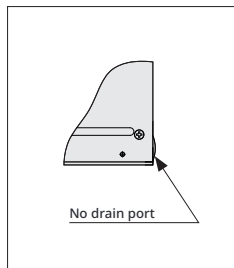
Installation Specifications



Drain Port Specifications (Positive Pressure Type Only)



Appearance of Negative Pressure Type



Dimension Diagram(mm)

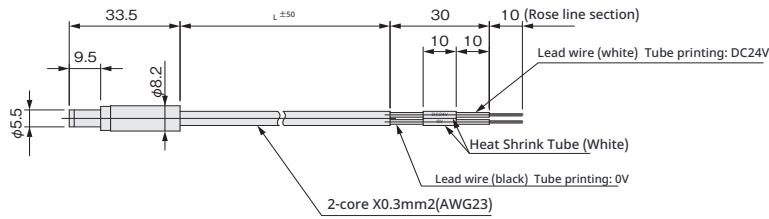
●SMPKP-D□

Power cable (for DC24V)

Wiring

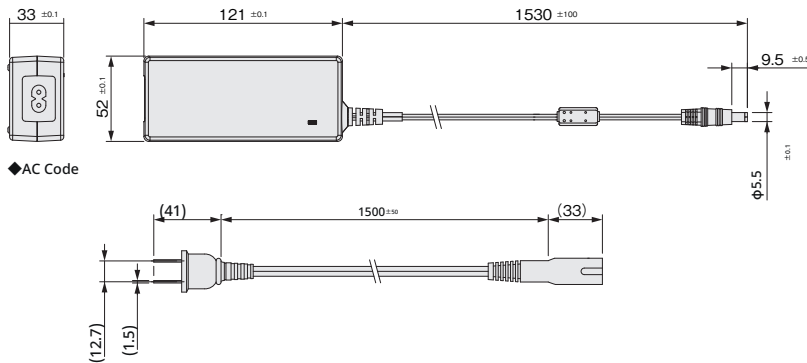
Center Contact	Lead Wire (White)
Cover Contact	Lead Wire (Black)

Form	L
SMPKP-D1L	1000
SMPKP-D3L	3000



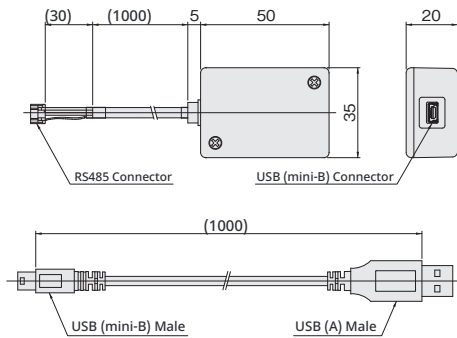
●SMPKP-AD

AC adapter (for AC100~240V)



●IBM2A-H1-□

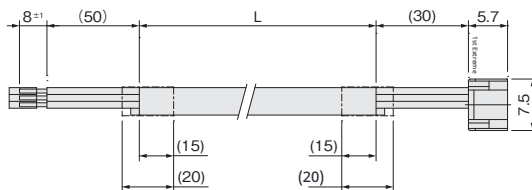
Communication Cable (USB-RS485 Converter)



●EW2KN-□

Communication Cable (For RS485 Communication, Stranded Wire)

Model	L
EW2KN-1L	1000
EW2KN-3L	3000



Connector terminal arrangement (controller lower)

1	NO.	Name	Color
2	1	A	White
3	2	B	Peach
4	3	GND	Yellow
5	4		
	5		



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