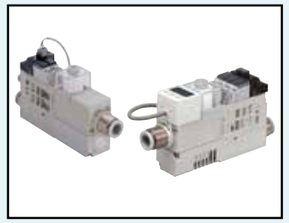


31.5 mm Width Integrated Type Vacuum Switching Unit

VSQP Series

Integrated type vacuum ejector unit optimal for controlling large flow rates

Abundant variations of vacuum supply valves

Normally Closed, Normally Open standardized.

Pressure sensor equipped with easy-to-view LCD 2-screen, 3-color display

With power saving mode function, 30% power saving possible.

Selection of negative common specification possible

Optimal when the negative side of the power supply is used as a common reference potential.

Compliant with Global Standards

CE UKCA RoHS

Model No. Notation

●31.5 mm width Discrete dedicated vacuum switching unit

VSQP - B - 10 - 10 - 3 - R

- VSQP: Model No.
- B: ❶ Valve-type
- 10: ❷ Vacuum Port (V)
- 10: ❸ Vacuum Supply Port (PV)
- 3: ❹ Solenoid Valve Voltage
- R: ❺ Vacuum Pressure Switch Specifications

Rechargeable Battery Compatible Specification (Catalog No. CC-1226AA)

●Design compatible with rechargeable battery manufacturing process

VSQP - ..... - P4*

*Please inquire for details.

❶ Valve-type

Code	Content
A	Normally Open Type
B	Normally Closed Type

❷ Vacuum Port (V)

Code	Content
10	ø10 Push-in fitting
12	ø12 Push-in fitting

❸ Vacuum Supply Port (PV)

Code	Content
10	ø10 Push-in fitting
12	ø12 Push-in fitting

❹ Solenoid Valve Voltage

Code	Content
1	100 VAC
3	24 VDC (Positive Common specification)
3MC	24 VDC (Negative Common specification)

❺ Vacuum Pressure Switch Specifications

Code	Content
Blank	Without Vacuum Pressure Switch
R	NPN Output 2 points with Digital Display
RP	PNP Output 2 points with Digital Display

Maintenance Part Model No.

*For details of the maintenance parts, P. 390.

●Filter Element

VSQ - E

- VSQ: Model No.

Specifications

Item	VSQP
Operating Fluid	Air
Operating Pressure MPa	0.3 to 0.7
Ambient Temperature/Fluid Temperature °C	5 to 50
Vacuum pressure kPa	-100 to 0

Solenoid Valve Specifications

●Pilot Valve

Item	Pilot Valve	
Valve-type and Operation Method	Direct acting poppet valve	
Rated Voltage V	24 VDC	100 VAC
Voltage Fluctuation Range V	DC 24 ±10%	AC 100 ±10%
Surge Suppressor	Varistor	Bridge Diode
Power Consumption	0.55 W	1 VA
Manual Override	Push-type lock type	
Operation Indicator	When coil is energized: Red LED lights up	

●Switching valve

Item	Vacuum Supply Valve	Vacuum Breaking Valve
Valve-type and Operation Method	Pilot operated poppet valve	
Valve-type	Normally Closed, Normally Open	Normally Closed
Lubrication	Not required	
Effective Area mm² (Cv value)	16.5 (0.89)	3.5 (0.19)

Vacuum Pressure Switch Specifications

Item		Vacuum Pressure Switch	
		NPN Output (R)	PNP Output (RP)
Working pressure kPa		-100 to 100	
Proof pressure kPa		500	
Environmental Resistance	Ambient Temperature (Storage)(°C)	-10 to 60 (No condensation or freezing)	
	Ambient Temperature (Operating)(°C)	0 to 50 (No condensation or freezing)	
	Ambient Humidity (Storage/Operating)	35 to 85% RH (No condensation)	
	Protection Structure	Equivalent to IEC Standard IP40	
Power Supply Voltage V		DC 12 to 24 ±10% Ripple(P-P) ≤ ±10%	
Current Consumption mA		≤ 40 (No load)	
Pressure Display	Display Update Rate	5 times/sec	
	Display Accuracy	±2% F.S. ±1 digit	
	Digital Display	Main display: 2 colors (red, sub-display: Orange)	
Switch Output	Number of Output Points	2 points	
	Output Method	NPN Open Collector	PNP Open Collector
	Switch Rating	≤ 30 VDC 125 mA	
	Internal Voltage Drop	≤1.5 V	
Temperature Characteristics		≤ ±2% F.S.(0 to 50°C, at 25°C)	
Repeatability		±0.2% F.S. ±1 digit	
Differential (Hysteresis)		Adjustable	
Response Time		Selectable (50/250/500/1000/2000/3000 ms)	

Vacuum Filter Specifications

Item	Vacuum Filter
Element Material	Polyvinyl formal
Filtration Rating μm	10
Filtration area mm²	1507

Vacuum Breaking Function

Item	Vacuum Breaking Function
Break Air Flow Rate L/min (ANR)	0 to 50 (at 0.5 MPa supply pressure)

Valve Lead Wire Color

Item	Black	Gray	Blue	Brown
24 VDC Plus Common Specification	Vacuum Generation (-)	Vacuum Breaking (-)	-(*1)	24 VDC (+ common)
24 VDC Minus Common Specification	Vacuum Generation(+)	Vacuum Breaking (+)	-(*1)	0 V (- common)
100 VAC Specification	Vacuum Generation (-)	Vacuum Breaking (-)	-(*1)	common

*: For this model, the included blue lead wire is not used.

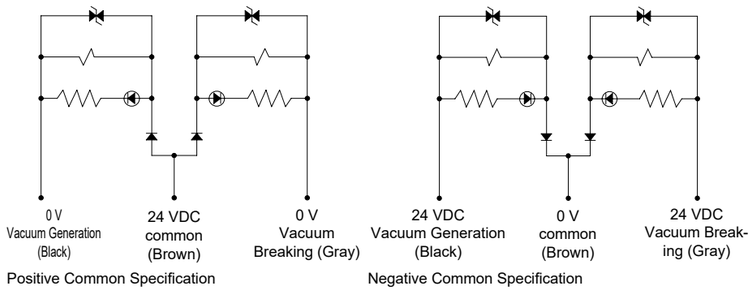
Weight Table

Model No.	Unit Contents	Weight (g)
VSPQ-□□□-□	Single unit without switch	327
VSPQ-□□□-□-R,RP	Single unit with switch	384

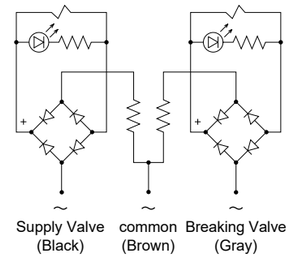
Cartridge	Weight (g)
ø10 Push-in fitting	19
ø12 Push-in fitting	26

Electrical Circuit (Solenoid Valve)

●24 VDC

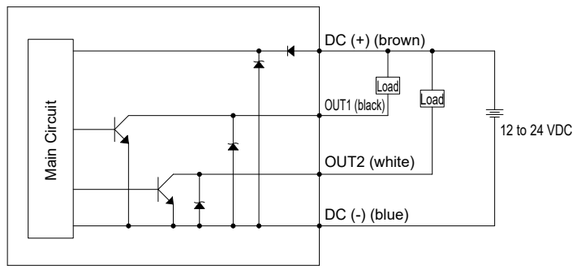


●100 VAC

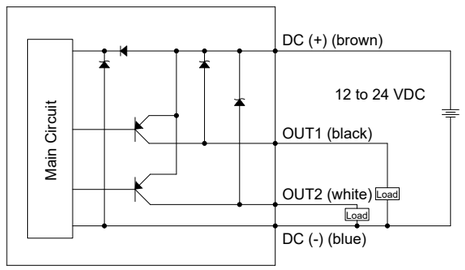


Vacuum Pressure Switch Electrical Circuit Diagram

■NPN open collector output

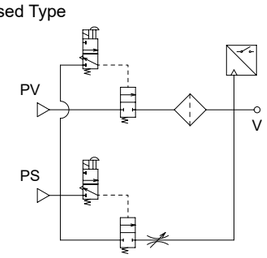


■PNP open collector output



Circuit Diagram

●Normally Closed Type

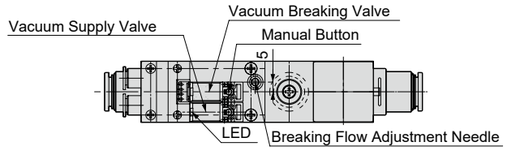


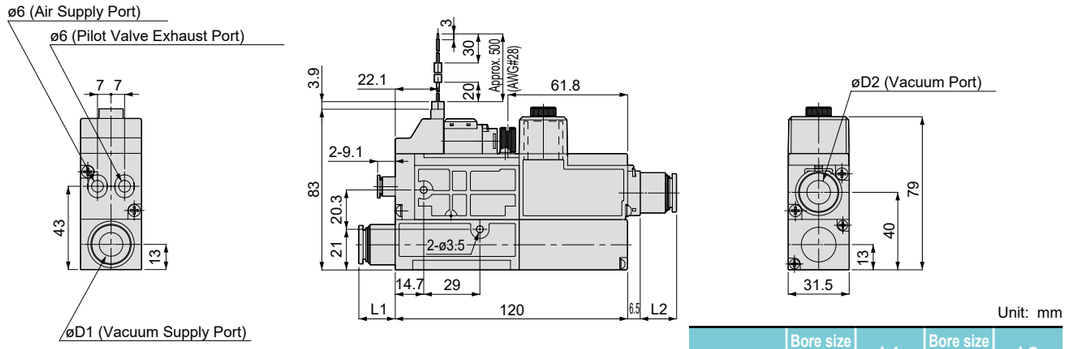
MEMO

Vacuum Components
Vacuum Pump System
VSJP/ VSJPM
VSNP/ VSNPM
VSXP/ VSXPM
VSQP
VSZPM
Ending

External Dimension Drawings

●Without Vacuum Pressure Switch

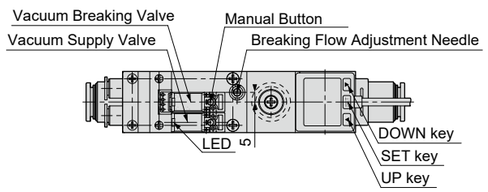


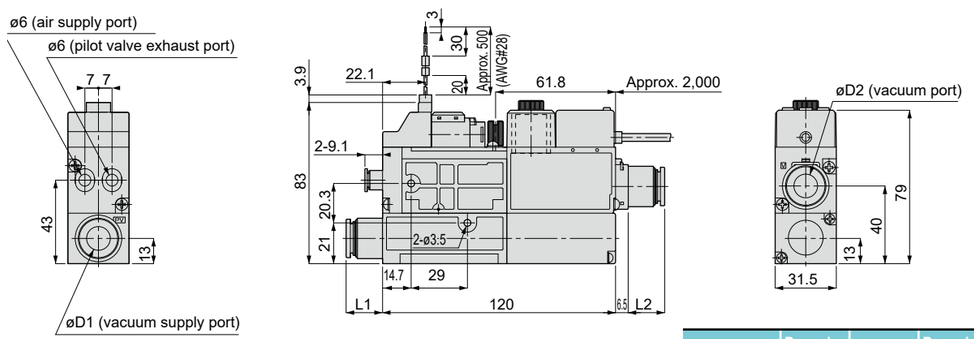


Unit: mm

	Bore size øD1	L1	Bore size øD2	L2
Air Supply Port	10	14.7	-	-
	12	18.8	-	-
Vacuum port	-	-	10	14.7
	-	-	12	18.8

●With vacuum pressure switch and digital display



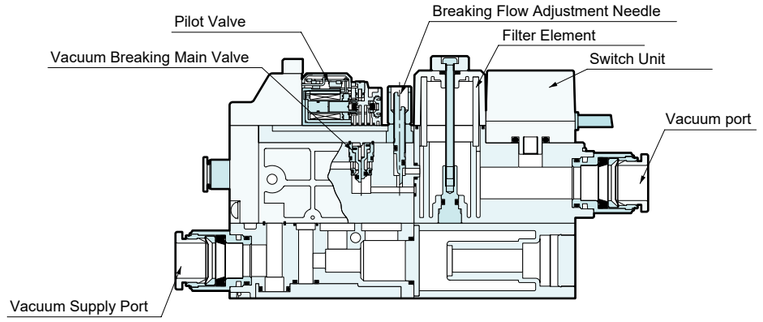


Unit: mm

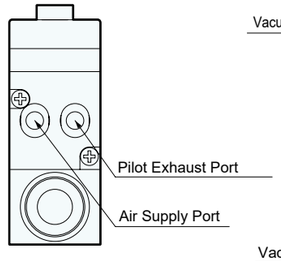
	Bore size øD1	L1	Bore size øD2	L2
Air Supply Port	10	14.7	-	-
	12	18.8	-	-
Vacuum port	-	-	10	14.7
	-	-	12	18.8

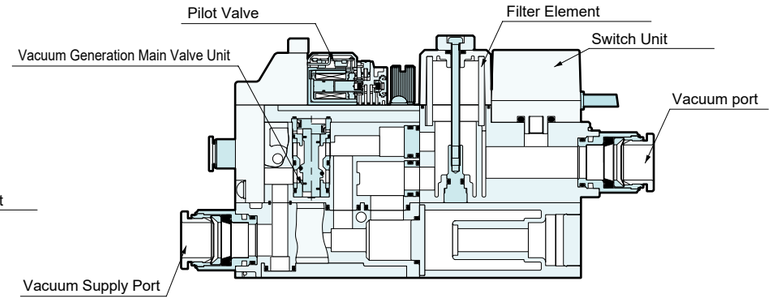
Internal Structure Diagram

●Burst circuit

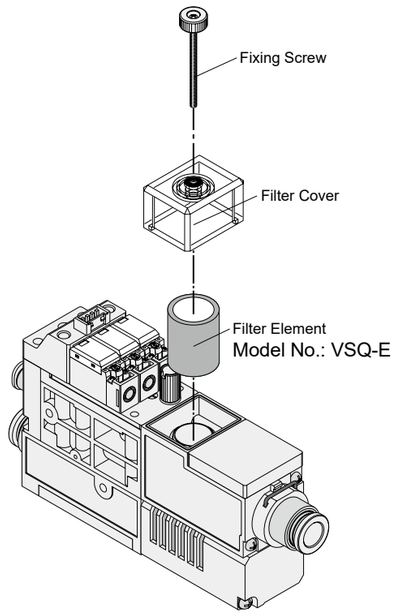


●Vacuum circuit





Maintenance Parts



Pneumatic Components

To Use This Product Safely

Be sure to read this before use.
For general pneumatic components precautions, refer to Intro 15 for details.

Individual Precautions: 31.5 mm Width Single Unit Dedicated Type VSQP Series

Design / Selection

Warning

■The vacuum retention function of the vacuum switching unit allows leakage. Hence, take other safety measures if vacuum retention for long periods is required.

■Make sure to turn the power OFF before wiring. Also, during wiring, check the lead wire color, terminal number, etc., and do not short the output terminal, power supply terminal, and common terminal. If short-circuited, there is a risk of sensor failure.

Caution

■Use a stable DC power supply.

■To connect to an output terminal or power supply terminal(relay, valve, etc.), install a surge voltage absorption circuit. Also, avoid usage where the current exceeds the rating.

■When using a unit power supply such as switching power supply, ground the F.G.(frame ground).

■Do not short-circuit the output terminal with other terminals.

For precautions regarding mounting, installation, adjustment, operation, and maintenance, please refer to the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → 'model No.' → Instruction Manual