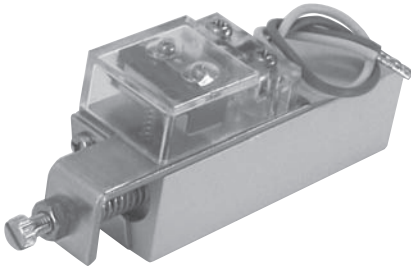


Mechanical vacuum switch CVA-V series



- Vacuum switch for CVA2 CONVUM ejector
- Mechanical vacuum switch

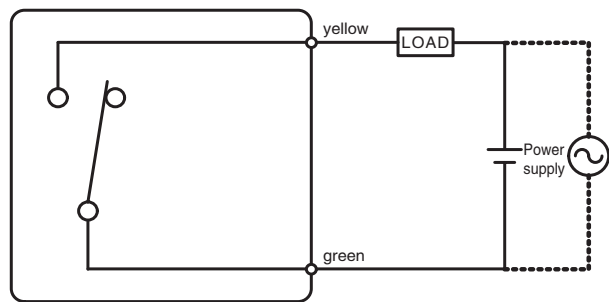
How to order

CVA - V

Specifications

Type	Unit	CVA-V
Fluid		Air (non corrosive, nonflammable gas)
Pressure range	kPa	-33.3 ~ -73.2
Proof pressure	MPa	0.5
Operating ambient temperature	°C	0 ~ 60
Operating humidity	%	35 ~ 85 RH(no condensation)
Hysteresis	kPa	4 ~ 13.3
Cable length	mm	100
Mass	g	135

Internal circuit diaphragm



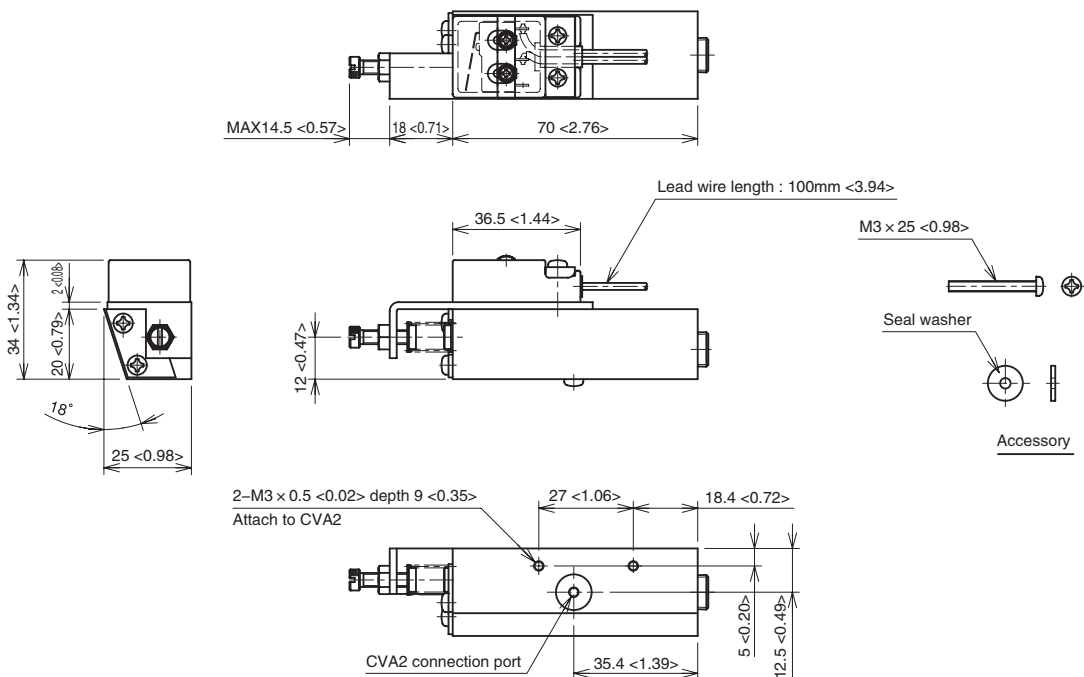
Normally open

Electric characteristics

Descriptions	Unit	
Arrangement of contact		Reed type, Normal open(N.O)
Rated voltage	V	AC125, 250
Current load	AC125V	A
	AC250V	A

Dimensions

Unit : mm <inch>



Display for sensor heads

MPS-71 / 74 series

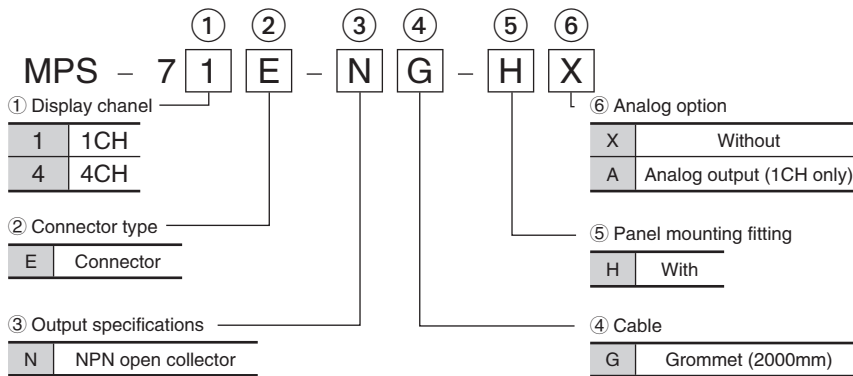


- Wire savings

Sensor heads are connected to the display.
Only one wire (display) is connected to the PLC.

- High speed response
- 1, 4 channels option
- CE marking

How to order MPS-71 · 74



Mounting parts

- Fittings

Surface mounting panel for MPS-71
MPS-ACCH4



L3, F3 bracket of MPS-71
MPS-ACCK1



Surface mounting panel for MPS-74
MPS-ACCH5



L7, F7 bracket of MPS-74
MPS-ACCK3



Vacuum gauge SG-4

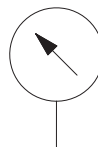


- Pressure gauge for vacuum measurement

- Easy connection

Push-in connection type ($\phi 6$)

Symbol



How to order

SG - 4

Specifications

Description	Unit	SG-4
Fluid		Non-lubricated air / non-corrosive gas
Ambient temperature	°C	-5 ~ 40(without freezing)
Operating pressure range	MPa	0 ~ -0.1
Mass	g	170

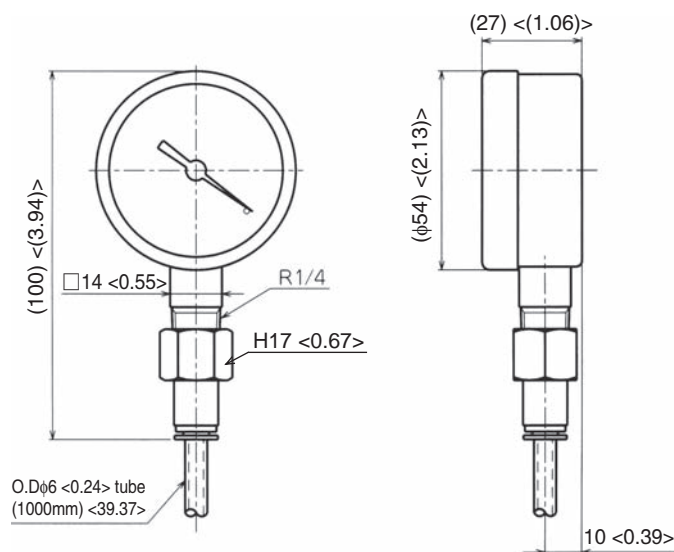


Caution

- This product is for vacuum measurement (negative pressure) only.
Do not use with positive pressure.

Dimensions

Unit : mm <inch>



Separate type pressure sensor head

MPS-8 series



● Wire savings

Sensor heads are connected to the display.
Only one wire (display) is connected to the PLC.

● High speed response

● Space saving

10mm width

● 4 types of pressure port

M5 (male, female), $\phi 4$, $\phi 6$,

How to order MPS-8 (Silicon diaphragm)

MPS - ^①V 8 ^②T - AG - ^③X ^④X

① Pressure range

V	Vacuum
R	Compound
P	Pressure

③ Cable length

X	2000 mm (standard)
---	--------------------

④ Connector

X	Without connector
E	EI connector

② Pressure port

A	M5 throughhole(w/o mounting hole)		U	M5 universal joint	
B	M5 throughhole(with mounting hole)		T	$\phi 6$ one touch joint	
C	M5 (with mount hole)		T4	$\phi 4$ one touch joint	

CONVUM mounting reference

MPS - V8 - ^①MC52

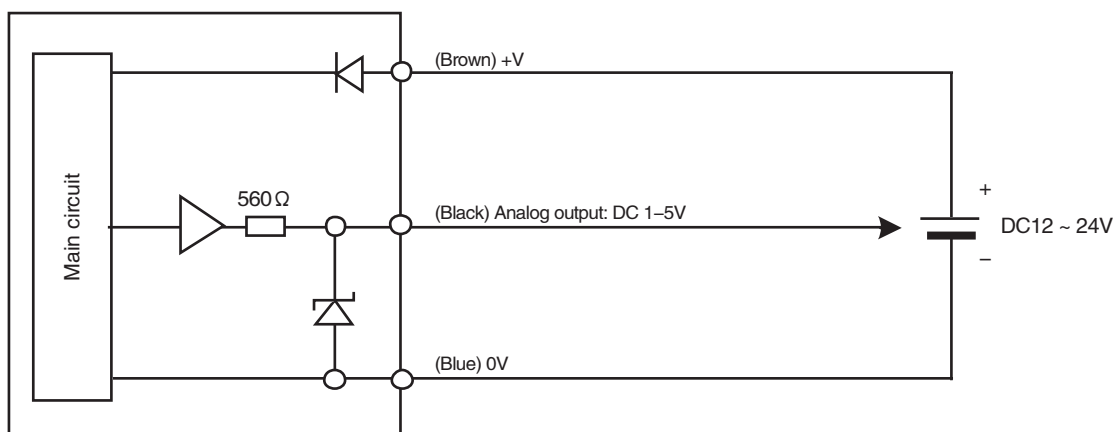
① Applicable series

MC5	For MC52
SC1	For SC1

Specifications

Description		Unit	MPS-V8	MPS-R8	MPS-P8
Fluid			Air (non corrosive, nonflammable gas)		
Diaphragm			Silicone Diaphragm		
Pressure range	kPa		-101 ~ 0	-101 ~ 500	1MPa
Proof pressure	MPa		0.5	0.8	15
Operating ambient temperature	°C		0 ~ 50		
Operating humidity	%		35 ~ 85 RH (without condensation)		
Port size			M5, $\phi 4$ push-in connector, $\phi 6$ push-in connector		
Power supply	V		DC10.8 ~ 30, ripple (Vp-p) 5% or less		
Power consumption	mA		20		
Analog output(Optional)	V		Voltage output DC1 ~ 5 (± 0.1) linearity 0.5% F.S., output impedance 560 Ω		
Temperature characteristic			$\pm 2\%$ of F.S. or less (at temperature 25°C, range of 0 ~ +50°C)		
Response time	ms		Less than 2		
Protection structure			IP40		
Vibration resistance			10 ~ 55Hz, double amplitude 1.5mm, 2hours/each direction XYZ		
Shock resistance	m/s ²		980 (3times for each direction XYZ)		
Connection of power source and output			Grommet		
Cable Specifications	Grommet		$\phi 4$ 0.15mm ² 4 pins 2m UL20276 approved cable		
Mass		g	A/B/C/U: 6, T/T4: 4 (without cable)		

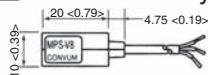
Internal circuit



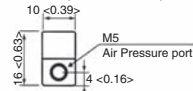
Dimensions

Unit : mm <inch>

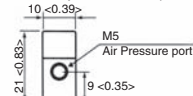
MPS8x x x Body



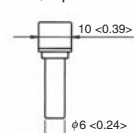
A : M5 penetration (W/O mounting hole)



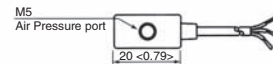
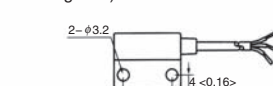
B : M5 penetration (With mounting hole)



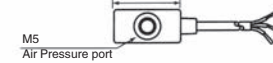
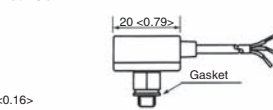
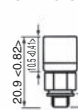
T : $\phi 6$ push-in coupling



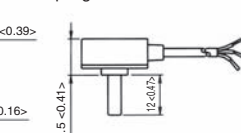
C : M5 (With mounting hole)



U : M5 Universal Joint



T4 : $\phi 4$ push-in coupling



Vacuum sensor (digital display)

MPS-33 series



- Wide pressure range, $-0.1 \sim 1.0\text{MPa}$

Vacuum pressure type: -101.3 kPa , Positive pressure: $-0.1 \sim 1\text{MPa}$
Compound pressure: $-101 \sim 500\text{kPa}$

- Easy settings

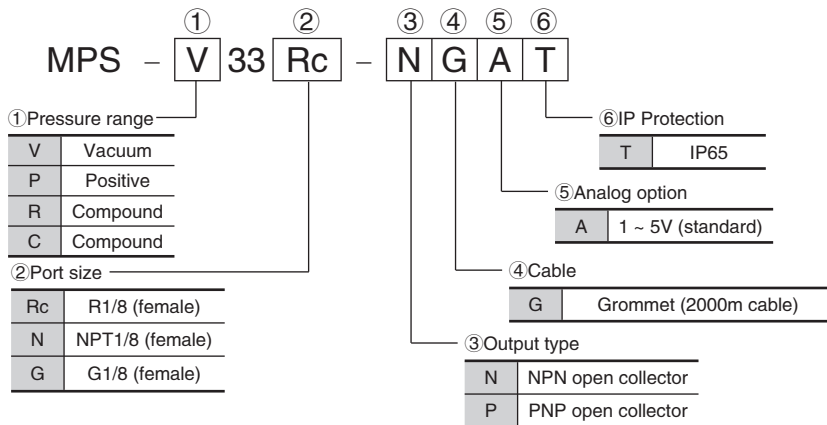
Use UP and DOWN keys to set the value.
Automatic settings mode available.

- Standard switch output and analog output

Switch output (open collector) Analog output (1 ~ 5V)

- IP65

How to order



Mounting parts

Surface panel mounting of MPS-33 L3 · F3 Bracket of MPS-33

MPS-ACCH8

Adapter for panel mounting (2 types) with its protection cover.

MPS-ACCK8

L3 fitting, F3 fitting and 2 setting screws (M4) set.



Specifications

Description	Unit	MPS-V33	MPS-P33	MPS-R33	MPS-C33
Fluid		Air (non corrosive, nonflammable gas)			
Diaphragm		Silicon diaphragm *1)			
Pressure range	kPa	-101.0 ~ 0kPa	-0.1 ~ 1MPa	-101 ~ 500kPa	-100.0 ~ 100kPa
Proof pressure	MPa	0.3	1.5	0.8	0.3
Operating ambient temperature	°C	0 ~ 50			
Operating humidity	%	35 ~ 85 RH(without condensation)			
Port size		Rc1/8(female), NPT1/8(female), G1/8(female)			
Power supply	V	DC12 ~ 24 ± 10%, Ripple(Vp-p) less than10%			
Power consumption	mA	less than 55			
Switch output	type	NPN or PNP open collector 2 outputs			
	Current load	mA max.80mA			
Analog output (Option)	Voltage output	DC1 ~ 5 (± 0.1%), linearity less than ± 0.5% of F.S., output impedance 1kΩ*2)			
	Repeatability	%			
Temperature characteristic		Less than ± 2% of F.S. (At standard temperature 25°C, range 0 ~ 50°C)			
Response time	ms	Less than 2.5 (Variable 24, 192, 768 options)			
Hysteresis		Variable			
Digital display		3 1/2 digits 7 segments, 1 color (Red) LED			
Resolution		0.1kPa	0.001MPa	1kPa	0.1kPa
Protection structure		IP65			
Vibration resistance		10 ~ 55Hz, total amplitude 1.5mm (2 hours in direction of XYZ)			
Shock resistance	m/s ²	980 (3 times in direction of XYZ)			
Electrical connection		Grommet			
Cable	Grommet	φ4 0.15mm ² 5 lead wires 2000mm			
Accessory		Atmospheric pressure port for tube connection *3)			
Mass	g	105 (with lead wire)			

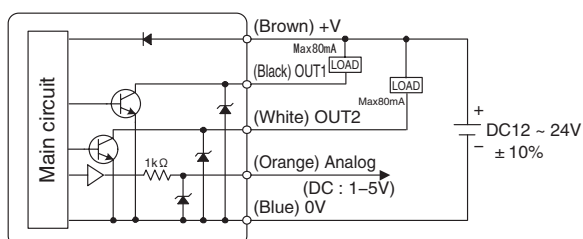
Note 1) Non grease specifications.

Note 2) Analog output of positive pressure type (P) in range of pressure 0 to 1 Mpa can output DC1-5V and 4-20mA. In range of pressure -0.1 to 0 it does not output.

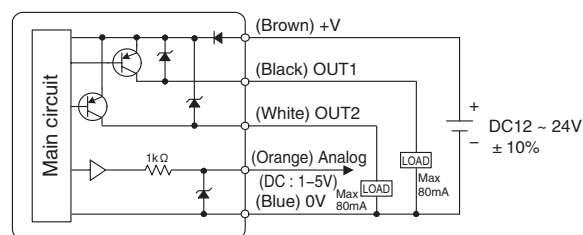
Note 3) In case of water splash against the sensor, please use the atmospheric pressure port with a tube.

Internal circuit

NPN output (Analog voltage output)



PNP output (Analog voltage output)



Vacuum sensor (2 colors digital display)

MPS-34 series



● Easy checking with 2 colors display

Output switch ON / OFF display changes color according to the operation. 4 patterns settings.

● Wide pressure range, -0.1 ~ 1.0MPa

Vacuum pressure type: -101.3 kPa, Positive pressure: -0.1 ~ 1MPa
Compound pressure: - 101 ~ 500kPa

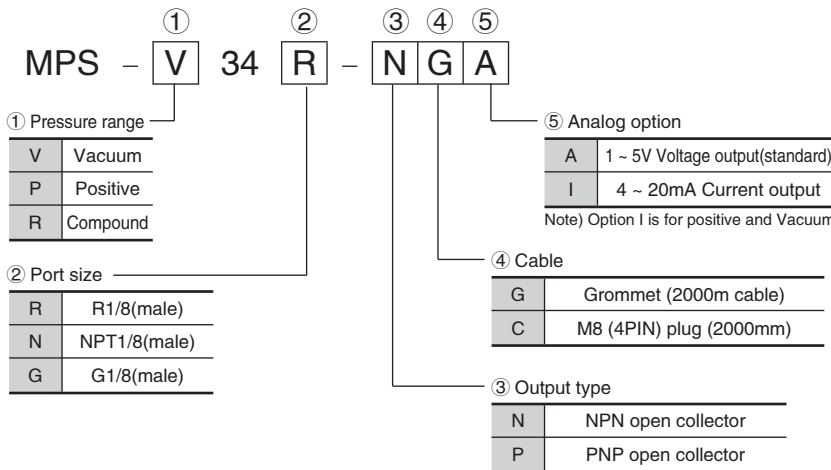
● Easy settings

Use UP and DOWN keys to set the value.
Automatic settings mode available.

● Standard switch output and analog output

Switch output (open collector) Analog output (1 ~ 5V)

How to order



Mounting parts

Surface panel mounting of MPS-34

MPS-ACCH9

Adapter for panel mounting (2 types) with its protection cover.



L3 · F3 Bracket of MPS-34

MPS-ACCK10

L3 fitting, F3 fitting and 2 setting screws(M3) set.



M8 cable of MPS-34

MPS-ACCL8

Cable of 4 lead wires cable (2000mm length) with M8 connector.



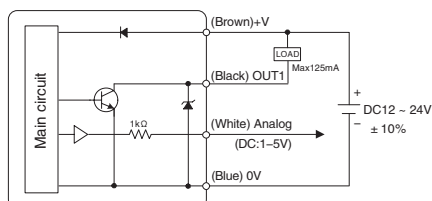
Specifications

Description		Unit	MPS-V34	MPS-P34	MPS-R34
Fluid			Air (non corrosive, nonflammable gas)		
Diaphragm			Silicon diaphragm		
Pressure range		kPa	-101.3 ~ 0kPa	-0.1 ~ 1MPa	-101 ~ 500kPa
Proof pressure		MPa	0.3	1.5	0.8
Operating ambient temperature		°C	0 ~ 50		
Operating humidity		%	35 ~ 85 RH (without condensation)		
Port size			R1/8 (male), NPT1/8 (male), G1/8 (male) Inlet port size M5(female)		
Power supply		V	DC12 ~ 24 ± 10% , Ripple (Vp-p) less than 10%		
Power consumption		mA	less than 45		
Switch output	type		NPN or PNP open collector 1 output		
	Current load	mA	max.125mA		
Analog output (Option)	Voltage output	V	DC1 ~ 5 (±2.5%), linearity less than ± 1% of F.S., output impedance 1kΩ 4 ~ 20 ± 2.5%, linearity less than ± 1% of F.S		
	Current output	mA	Maximum load impedance 300Ω (at 12V power), 600Ω (at 24V power) Minimum load impedance 50Ω		
Repeatability		%	± 0.2 F.S., 1digit or less		
Temperature characteristic			Less than ± 2% of F.S.(At standard temperature 25°C , range 0 ~ 50°C)		
Response time		ms	Less than 2.5(Variable 24, 250, 500, 1000, 1500 options)		
Hysteresis			Variable		
Display	Digital display		3 1/2 digits 7 segments, 2 colors (Red/Green) LCD		
	Operation		LCD (Green when ON)		
Resolution			0.1kPa	0.01MPa	1kPa
Protection structure			IP40		
Vibration resistance			10 ~ 55Hz, total amplitude 1.5mm (2 hours in direction of XYZ)		
Shock resistance		m/s ²	100 (3 times in direction of XYZ)		
Voltage resistance			AC1000V 1 minute (Between lead and case)		
Electrical connection			Grommet or M8 connector		
Cable	Grommet		φ 4 0.15mm ² 4 lead wires 2m		
	M8 connector		φ 4 0.15mm ² 4 lead wires 100mm (M8 4PIN with male connecto)		
Fittings			L3, F3 fittings		
Mass	Grommet	g	75 (45with lead wire)		
	M8 connector		45 (with connector and lead wire)		

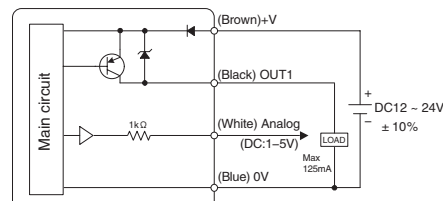
Note 1) Analog output of positive pressure type (P) in range of pressure 0 to 1 Mpa can output DC1-5V and 4-20mA. In range of pressure -0.1 to 0 MPa it does not output.
 Note 2) Current output type is available for Vacuum type (V) and Positive pressure type (P) only.

Internal circuit

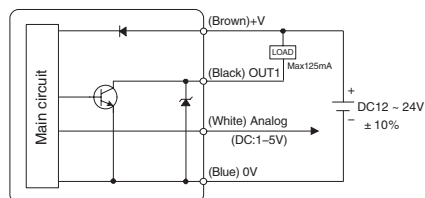
NPN output (Analog voltage output)



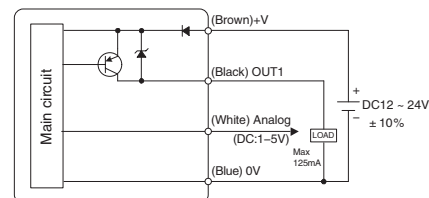
PNP output (Analog voltage output)



NPN output (Analog current output)



PNP output (Analog current output)



Vacuum switch

MVS-030AB series



- Vacuum switch
- Small size, high-accuracy
 - High-speed response time: 2ms
- Can be mounted on several CONVUM ejectors
 - Easy sensor replacement

How to order

MVS - 030AB - R

Port size	
R	R1/8
NPT	NPT1/8
G	G1/8

CONVUM ejector mounting reference

MVS - 030AB ^①P - ^②MC22

① Output type

Blank	NPN open collector
P	PNP open collector

② Applicable series

MC22	For MC22
CVA	For CVA2
CVF	For CVF
MC72	For MC72
MPV3	For MPV3
CV4	For CV4

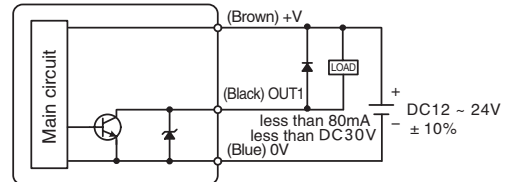
Specifications

Type	Unit	MVS-030AB
Fluid		Air (non corrosive, nonflammable gas)
Pressure range	kPa	-2.7 ~ -101.2
Setting value before shipment	kPa	-46.6
Proof pressure	MPa	0.5
Operating ambient temperature	°C	0 ~ 50
Operating humidity	%	35 ~ 85 RH (no condensation)
Port size		R1/8, NPT1/8, G1/8
Power supply	V	DC12 ~ 24 ± 10%
Power consumption	mA	20
output	Display	LED, RED color
	Type	NPN/PNP Open collector
	Rated	max.DC30V 80mA
Repeatability	%	± 3 F.S
Response time	msec	Less than 2
Noise resistance		Vp-p240V, 10ms, 0.5μs(by noise simulator)
Setting method		2/3 turn trimmer
Cable specifications		φ4 3pin × 0.15mm length 2m
Materials		ABS plastic, Zinc Die-cast
Mass(including Cable)	g	64

No protection against oil, water.

Internal circuit diaphragm

NPN output



Vacuum switch MVS-035G series



- Vacuum switch
- Small size, high-accuracy
 - High-speed response time: 2ms
- With analog output (1-5V)
- Hysteresis variable type
- Can be mounted on several CONVUM ejectors

Easy sensor replacement

How to order

MVS - 035G - **R**

Port size

R	R1/8
NPT	NPT1/8
G	G1/8

CONVUM ejector mounting reference

MVS - 035G - **CVF**

①Applicable CONVUM

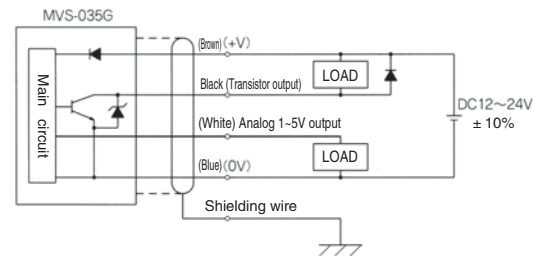
CVA2	For CVA2
CVF	For CVF
MPV3	For MC72, CVR2, MPV3, MPV6
CV4	For CV4

Specifications

Type	Unit	MVS-035G
Fluid		Air (non corrosive, nonflammable gas)
Pressure range	kPa	-2.7 ~ -101.2
Setting value before shipment	kPa	-46.6
Proof pressure	MPa	0.5
Operating ambient temperature	°C	0 ~ 50
Operating humidity	%	35 ~ 85 RH (without condensation)
Port size		R1/8, NPT1/8 or G1/8
Power supply	V	DC12 ~ 24 ± 10%
Power consumption	mA	20
output	Display	LED, RED color
	Type	NPN Open collector
	Rated	max.DC40V 100mA
Repeatability	%	± 3 F.S
Response time	msec	Less than 2
Hysteresis		Variable (2 ~ 9%)
Noise resistance		Vp-p240V, 10ms, 0.5μs(by noise simulator)
Setting method		Vacuum : 2/3-turn trimmer, Hysteresis : 2/3-turn trimmer
Cable specifications	m	φ4 4 pin KVV AWG26 standard shield
Materials		ABS plastic, Zinc Die-cast
Mass (including cable)	g	81

No protection against oil, water.

Internal circuit diaphragm



Digital pressure sensor with solenoid valve control

MVS-201 series



● Wiring savings

Only 1 cable of 4 lead wires to the PLC.
No need to connect solenoid valves cables.

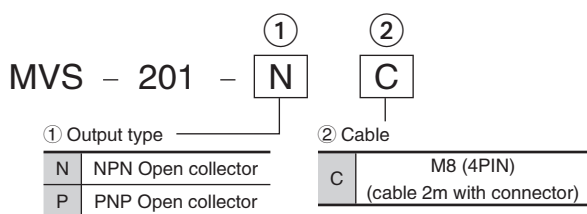
● Energy saving circuit integrated

Air consumption reduction: MVS-201 sensor controls the solenoid valves and turn on the vacuum generation only when minimum vacuum degree pressure value is reached. Please refer to p.389

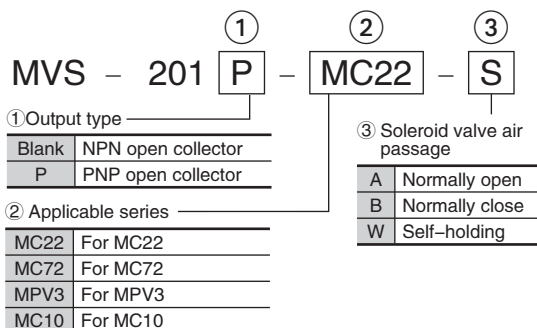
● Easy settings

Only 3 key for value settings

How to order



CONVUM ejector mounting reference



Note) The energy-saving function of a sensor cannot work if the self-holding valve is selected.

How to order (option)

M8 cable: MPS-ACCL8

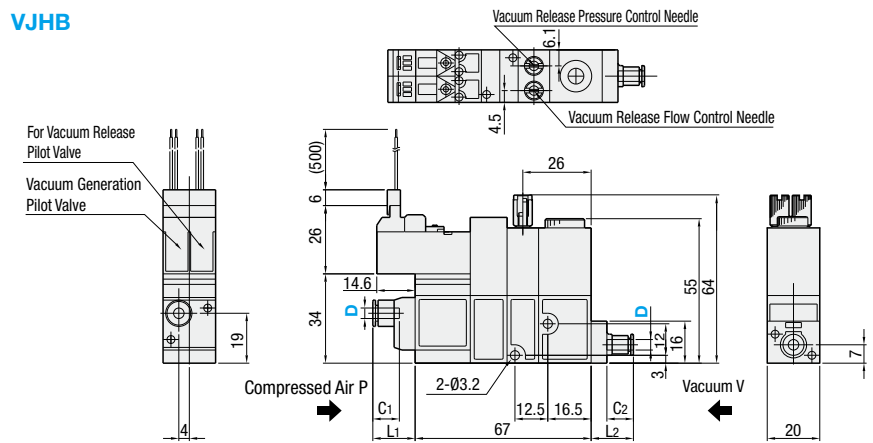
Specifications

Type	Unit	MVS-201
Fluid		Air (non corrosive, nonflammable gas)
Diaphragm		Silicone Diaphragm
Pressure range	kPa	-101 ~ 500
Proof pressure	MPa	0.8
Operating ambient temperature	°C	0 ~ 50
Operating humidity	%	35 ~ 85 RH(no condensation)
Power supply	V	DC24, ripple (Vp-p)10% or less *1)
Power consumption	mA	45
Output		NPN or PNP open collector,output 1point
	Current load	mA
Digital input (Suction/break command)	V	Non-contact input (more than 1msec)
Repeatability	%	± 0.3 F.S., less than 1digit
Temperature characteristic		25°C ± 2% of F.S. or less at range of 0 ~ +50°C
Response time	ms	2.5
Hysteresis		Variable
Display		3 digits, 7 segments LED (Red color)
Display resolution	kPa	1
Display time	s	0.2
Protection structure		IP 40
Vibration resistance		10 ~ 150Hz, double amplitude 1.5 mm 2 hours/each direction XYZ
Shock resistance	m/s ²	100 (3times each direction)
Connection of power source and output		M8 connector
Cable specifications	M8 Connector	φ4 0.3mm ² 4 wires 2000mm
Mass(without cable)	g	20

Note) Consult with us for sensor operating voltage when solenoid valve use other than 24 VDC.

Vacuum Ejectors

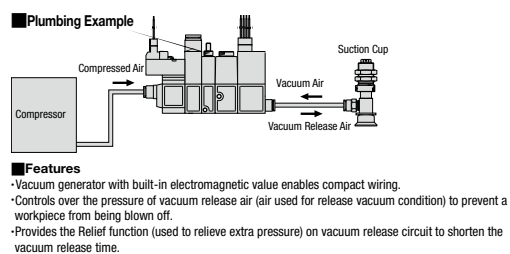
Standard Type



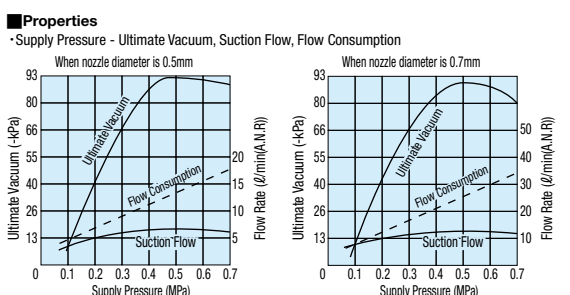
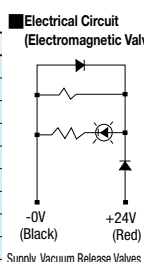
Part Number	Nozzle Dia. Nominal	Nozzle Dia. (mm)	L1	L2	C1	C2	Ultimate Vacuum (-kPa)	Suction Flow (l/min (ANR))	Flow Consumption (l/min (ANR))	Mass (g)	Unit Price	Volume Discount Rate
Type	D										1 ~ 9 pc (s).	10 ~ 20
VJHB	4	5	14.6	14.3	10.9	10.9	90.4	7	11.5	164.5		
		7					93.1	13	23			
	6	5	17.1	17.2	11.7	11.7	90.4	7	11.5			
		7					93.1	13	23			

Name	Material
Body Resin	Glass Fiber Filled PBT (Polybutylene Terephthalate)
Seal Rubber	Nitrile Rubber
Main Valve	Aluminum Alloy
Joint Portion Metal	Brass + Electroless Nickel Plating
Vacuum Filter Cover	PCT (Polycarbonate)
Filter Cover Holder	Aluminum Alloy
Vacuum Generation Nozzle	Brass + Electroless Nickel Plating
Vacuum Generation Diffuser	Brass + Electroless Nickel Plating
Release Air Flow Rate Control Needle	Brass + Electroless Nickel Plating

Applicable Fluid	Air
Operating Temperature Range	5 ~ 50°C
Operating Pressure Range	0.3 ~ 0.7MPa
Rated Supply Pressure	0.5MPa
Release Air Flow Rate	0 ~ 50g / min(ANR) (When supply pressure is 0.5 MPa)
Structure of Release Air Relief Valve	Elastic Seal, Poppet Valve
Relief Pressure Selecting Range	0.005 ~ 0.05MPa



Item	Electromagnetic Valve for Vacuum Generator	Electromagnetic Valve for Vacuum Release
Operation Method	Direct Operation	
Valve Structure	Elastic Seal, Poppet Valve	
Rated Voltage	DC24V	
Allowable Voltage Range	DC24V±10%	
Surge Protection Circuit	Diode	
Power Consumption	1.2W (with LED)	
Manual Operation	Push Type - Non-Locking	
Operation Indicator	Coil Excitation Operation: Red LED On	
Connection Method	Red: DC24V Black: COM	
Operation Method	Air Pressure Operation with Pilot Valve	
Valve Structure	Elastic Seal, Poppet Valve	
Pressure Resistance	1.05MPa	
Valve Type	NC (Normally Closed)	
Lubrication	Not Required	
Effective Sectional Area	Air Supply Port Size: Ø4:3.5mm ² Ø6:5mm ²	1mm ²

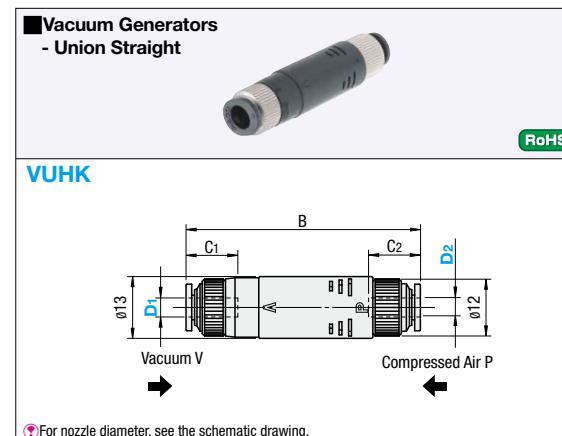


- The characteristic supply pressure above is for vacuum generation.
- Valve can cause abnormal sounds at the supply pressure of 0.4 ~ 0.45MPa, i.e. the supply pressure value just prior to the peak value of Ultimate Vacuum. This abnormal sound indicates unstable properties, and the noise will be large. It may affect the sensor and other objects and cause troubles. Please reset supply pressure.
[Ex.1] The original pressure is 0.5MPa. However, when the vacuum generator is operated, pressure supply declines down to 0.43MPa due to pressure drop and abnormal noise occurs.
→Reset the supply pressure to 0.5MPa when vacuum generator is operating.
- When selecting plumbing and equipment, use the triple value of the Nozzle Dia. Sectional Area as guide of Effective Sectional Area. If adequate supply air flow rate is not retained, sufficient vacuum properties cannot be achieved. (Abnormal sound may be generated even within the Set Pressure range. Suction Flow, Ultimate Vacuum, etc. may be left insufficient.)
[Ex. 2] Though the pressure is 0.5MPa when vacuum generator is operating, abnormal sound occurs.
→Insufficient supply air flow rate (Air flow is squeezed by pipe resistance in the vacuum generator, not obtaining supply air flow rate that meets the characteristics).
→Select plumbing and equipment to ensure the necessary effective sectional area.
[Ex. 3] When nozzle diameter is 0.5mm, the sectional area is 0.25x0.25xπx3=0.59mm²
→Select plumbing and equipment to retain the effective sectional area to 0.6mm² or more.

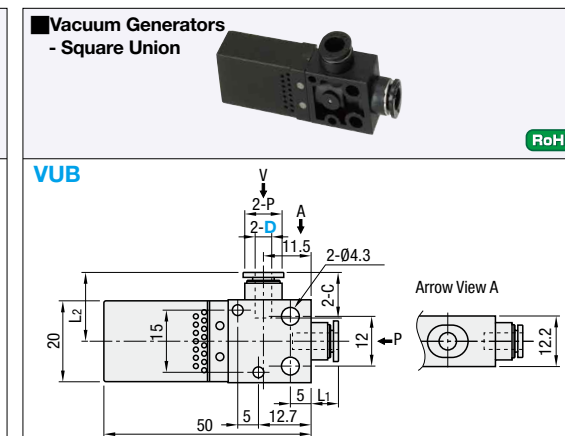
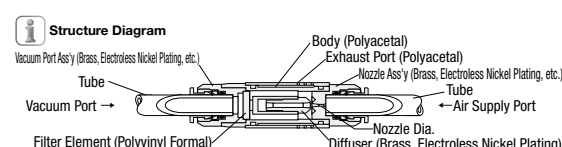
Part Number	(D)	(d)	(L)	Filtration Level	Filter Surface Area	Unit Price	Volume Discount Rate
						1 ~ 9 pc (s).	10 ~ 20
VJHBE	12	8	30	10µm	1130mm ²		

Material: Polyvinyl Formal

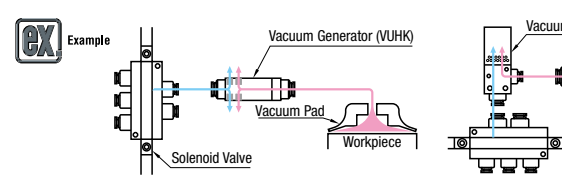
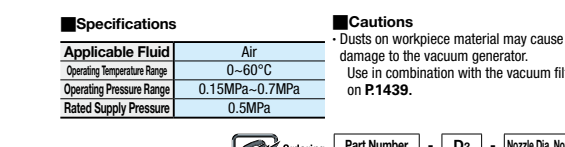
Vacuum Generators / Vacuum Pressure Sensors



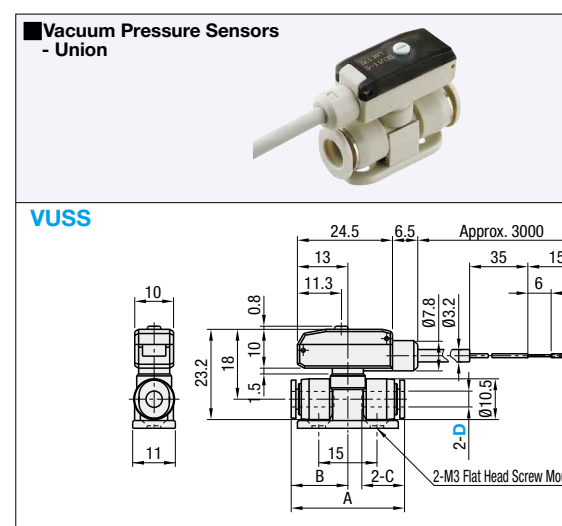
Part Number	Nozzle Dia. Nominal	Nozzle Dia. (mm)	B	C1	C2	Ultimate Vacuum (-kPa)	Suction Flow (l/min (ANR))	Flow Consumption (l/min (ANR))	Mass (g)	Unit Price	Volume Discount Rate
Type	D1	D2								1 ~ 9 pc (s)	10 ~ 20
VUHK	4	5	0.5	49.3	11	11	90	7	11.5	18.5	
		7	0.7	56.1	11	11	92	12.5	23	20	
	6	5	0.5	51.2	11.7	11.7	90	7	11.5	17.5	
		7	0.7	57.7	11.7	11.7	92	12.5	23	18.5	



Part Number	Nozzle Dia. Nominal	Nozzle Dia. (mm)	P	C	L1	L2	Operating Pressure (MPa)	Ultimate Vacuum (-kPa)	Suction Flow (l/min (ANR))	Flow Consumption (l/min (ANR))	Mass (g)	Unit Price	Volume Discount Rate
Type	D											1 ~ 9 pc (s)	10 ~ 20
VUB	4	0.5	9	11	6.6	16.6	0.5	90	7	11.5	18		
	6	0.7	10.5	11.6	7	17	0.5	93	13	23	18.5		



Part Number	D2	Nozzle Dia. Nominal
VUHK4	4	7
VUB6	6	7



Part Number	D	C	A	B	Mass (g)	Unit Price	Volume Discount Rate
Type						1 ~ 9 pc (s).	10 ~ 20
VUSS	4	11	29.2	14.6	48		
	6	11.6	30	15	48		

Applicable Fluid	Compressed Air
Pressure Detection Method	Diffusion Semiconductor Pressure Switch
Power Supply	DC10.8 ~ 30V (Ripple included)
Power Consumption	20mA or Less (at DC24V, no load)
Operating Pressure Range	-100 ~ 0kPa
Pressure Resistance	200kPa
Storage Temp. Range	-20 ~ 70°C (Atmospheric Pressure, Humidity 60% or Less)
Operating Temperature Range	0 ~ 60°C (No Freezing)
Operating Humidity Range	35 ~ 85% (No Freezing)
Protection Structure	IEC Standards (IP40 Equivalent)

