

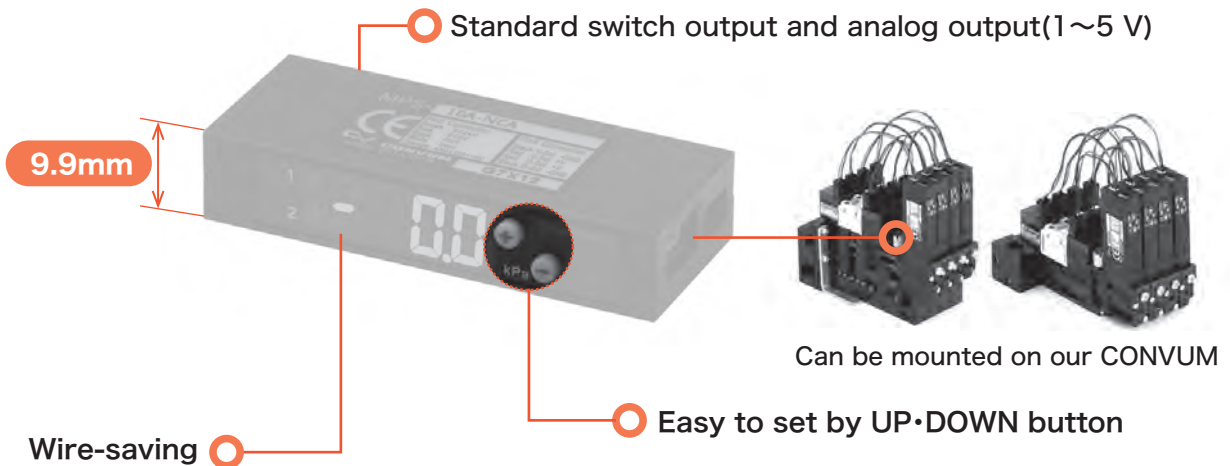
MPS-10 Series

Digital Display Pressure Sensor with Solenoid Valve Control



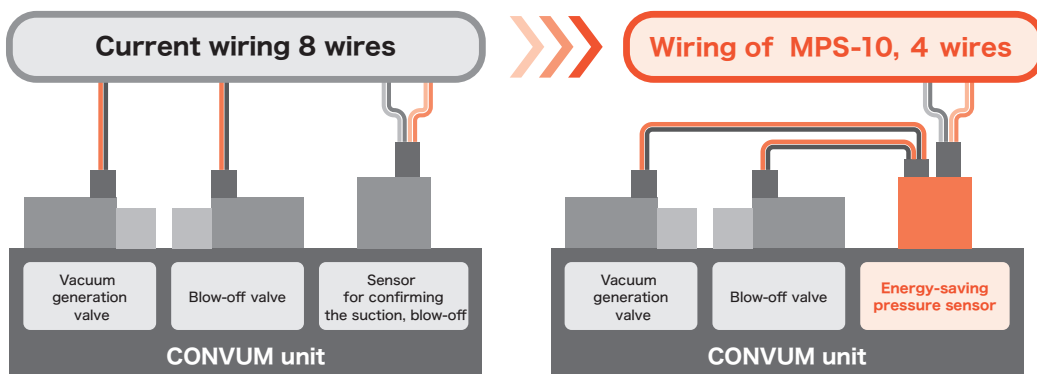
Makes it possible to energy-saving by monitoring and controlling the pressure!

Energy-saving pressure sensor controls the solenoid valve mounted on CONVUM, and it controls the vacuum and blow-off in accordance with the setting pressure value. Energy-saving pressure sensor reduces the air consumption of CONVUM.



Wire-saving

Wiring of I/O to PLC only need one four-core cable. Wiring of vacuum generation/blow-off solenoid valve is unnecessary. It could help on space-saving of the device, reducing the sequencer loading, lowering down the operation time of electrical wiring.



Pressure Sensor with Solenoid Valve Control

- 04 Pressure sensor
- MPS-35
- MPS-23
- MPS-9
- MPS-10**
- MVS-201
- MVS-030AB

How to Order

• Single Type

MPS - 10A - N CA S

① Output Type(Switch output)

| Symbol | Specifications |
|--------|--------------------|
| N | NPN open collector |
| P | PNP open collector |

② Input Type

| Symbol | Specifications |
|--------|-------------------------------|
| Blank | Sink input |
| S | Source input ^{Note1} |

Note1) Only PNP (select P in ①).

• CONVUM Mounting Type

MPS - 10 P - SC - B

① Output Type(Switch output)

| Symbol | Specifications | Applicable CONVUM |
|--------|--------------------|-------------------|
| Blank | NPN open collector | SC1, SC2 |
| N | NPN open collector | SC3 |
| P | PNP open collector | SC1, SC2, SC3 |

② Applicable CONVUM

| Symbol | Applicable CONVUM |
|--------|-------------------|
| SC | SC1, SC2 |
| SC3 | SC3 |

※ With valve connector cable and bracket.

③ Vacuum Generation Valve Type

| Symbol | Type | Applicable CONVUM |
|--------|-------------------------------|-------------------|
| A | Normally opened | SC3 |
| B | Normally closed | SC1, SC2 |
| S | Normally closed | SC3 |
| W | Self-holding ^{Note1} | SC1, SC2, SC3 |

Note1) The energy-saving function of a sensor cannot work if the self-holding valve is selected.

Option Parts

• Connector Cable for Power / Control Input or Output

MPS - 10CC



• Bracket for Mounting to CONVUM

MPS - 10 - B



• Connection Connector Cable for Valve

MPS - 10 - VC - SC1 - W



① Applicable CONVUM

| Symbol | Applicable CONVUM |
|--------|-------------------|
| SC1 | SC1 |
| SC2 | SC2 |
| SC3 | SC3 |

② Vacuum Generation Valve Type

| Symbol | Type |
|--------|-------------------------|
| Blank | Normally opened, closed |
| W | Self-holding |

MPS-10 Digital Display Pressure Sensor with Solenoid Valve Control

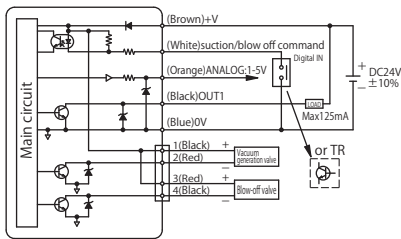
Pressure Sensor
Digital Display Pressure Sensor
with Solenoid Valve Control

Specifications

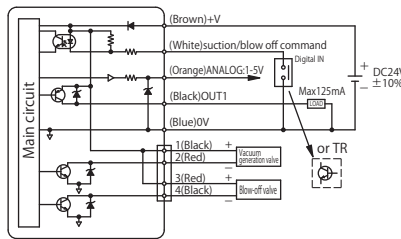
| Description \ Model number | | Unit | MPS-10 |
|---|---------------------------------|------------------|--|
| Fluid | | | Air, non-corrosive gas, non-flammable gas |
| Diaphragm | | | Silicon diaphragm |
| Rated pressure range | | kPa | -101~500 |
| Setting pressure range | | kPa | -101~500 |
| Withstand pressure | | MPa | 0.8 |
| Ambient temperature range | | °C | 0~50(No freezing) |
| Ambient humidity range | | %RH | 35~85(No condensation) |
| Power supply voltage | | V | DC24±10%, ripple(Vp-p) 5% or less |
| Maximum power consumption | | mA | 50 (not include the driven current for valve) |
| Switch output | Type | | NPN or PNP open collector 1 output |
| | Maximum load current | mA | 125 |
| Analog output | | V | DC1~5 (±0.1) linearity 1.0% F.S., output impedance 1kΩ |
| Digital input(suction/blow off command) | | V | Non-contact 1 input:0V or 24V(more than 1msec) |
| Repeatability | | % | ±0.3 F.S 1 digit or less |
| Temperature characteristic | | % | Less than±2 F.S (At standard temperature 25°C, range 0 ~ 50°C) |
| Response time | | ms | 1.5 or less |
| Hysteresis | | | Variable |
| Display | Digital | | 4-digits, 7-segment red LED |
| | Operation | | Output ON/OFF:red color LED Vacuum generation valve ON/OFF:green color LED |
| Display/set resolution | | kPa | 1 |
| Display time | | s | 0.2 |
| Protection | Reverse-current protection | | With |
| | Overvoltage protection | | With |
| | Output short circuit protection | | With |
| | IP class | | IP40 |
| Vibration resistance | | | 10~55Hz, total amplitude 1.5mm, 50m/s ² 2 hours each direction of XYZ |
| Shock resistance | | m/s ² | 100 3 times each direction of XYZ |
| Electrical connection | | | Connector |
| Cable | | | 5 lead wires, 24AWG, UL AWM 20276, 1000mm |
| Connector | | | Maker:JST Model:GHR-05V-S |
| Weight | Without cable | g | 10 |
| | With cable | | 32 |

Internal Circuit

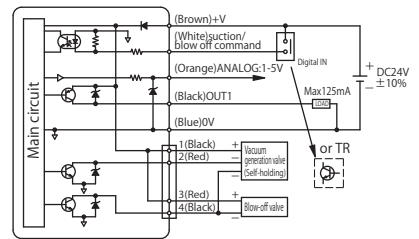
NPN Output(sink input)



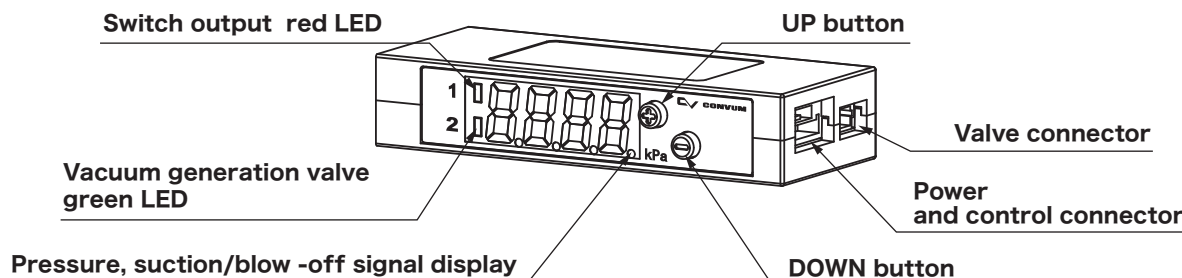
PNP Output(sink input)



PNP Output(source input)



Display Description



Setting · Function

※ Please refer to the instruction manuals for details.

SUCTION MODE AND TIMER SETTING

Press \odot once and wait for 3 seconds after having release it.

Select suction mode with \oplus / \ominus

Press \oplus / \ominus at the same time.

Select a desired value for "bt" with \oplus / \ominus

Press \oplus / \ominus at the same time.

Select a desired value for "t1" with \oplus / \ominus

Press \oplus / \ominus at the same time.

Select a desired value for "t2" with \oplus / \ominus

Press \oplus / \ominus at the same time.

Suction mode

0P1 : Suction mode 1 (ON by timer : suction maintained by the timer)

0P2 : Suction mode 2 (OFF by timer : vacuum solenoid valve OFF after expiration of timer)

※Self-holding type solenoid valve control, please use mode 2 adsorption.

0P3 : Suction mode 3 (ON : vacuum solenoid valve kept ON)

1. 'Blow-off time」bt

Set a time during which to keep the blow-off solenoid valve ON in response to the blow-off command signal. It can be set between 0.00 and 9.99 seconds. Beyond 9.99 seconds, "At" (automatic) is displayed. If "At" is set, Blow-off solenoid valve turns off synchronously with the activation (ON) of OUT1 at the time of blow-off. ("bt" is common to all suction modes.)

2. 'Delay time 1」t1

Set a delay time from the activation (ON) of OUT1 to the deactivation (OFF) of vacuum solenoid valve after vacuum has reached the set point during suction. This can be set between 0.00 to 9.99 seconds. ("t1" can be set when the suction mode is 1 or 2.)

3. 'Delay time 2」t2

Set a delay time from the detection of blow-off command signal to the activation (ON) of blow-off solenoid valve. It can be set between 0.00 to 9.99 seconds. ("t2" is common to all suction modes.)

ZERO RESETTING

Press and hold \ominus for more than 3 sec.

※Zero resetting is possible only with an atmospheric pressure equivalent to $\pm 3\%$ or less of F.S.

SECURITY LOCK SETTING AND RESETTING

Press \oplus and \ominus at the same time for more than 3 sec.

※ Unlock method : press \oplus and \ominus at the same time again, then **UnL** displays and it is unlocked.

Security Lock mode can prevent operation mistakes.

ERROR CODE INSTRUCTION

| Error type | Error code | Error condition | Trouble shooting |
|--------------------------------|------------|---|--|
| OUT1 excess load current error | EE1 | Load current is more than 125 mA. | Turn power off and check the cause of overload current or lower the current load under 125 mA, then restart. |
| Zero reset error | E r r | During zero reset, input pressure is over $\pm 3\%$ F.S. of ambient pressure. | Change input pressure to ambient pressure and perform zero reset again. |
| System error | E r 1 | Internal system error | Please contact us. |

OTHER DISPLAY ITEMS

| Type | Display | Condition |
|--------------------------|---------|--|
| Rated range full | FFF | Pressure value surpassing the rated range. |
| Back pressure full scale | -FF | Pressure value surpassing the back pressure range. |

Setting · Function

※ Please refer to the instruction manuals for details.

3 TYPES OF SUCTION MODE

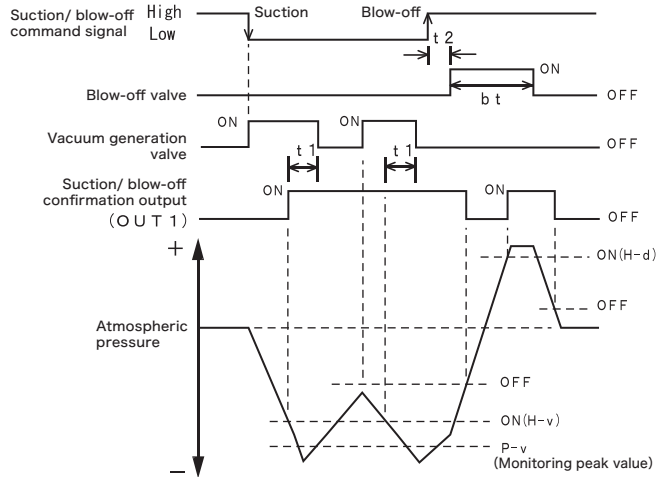
CONVUM Energy-saving Mode (Suction Mode 1)

Digital input (suction demand signal) turns on the vacuum solenoid valve to generate vacuum so that suction can be started.

Upon reaching the assigned vacuum volume, vacuum solenoid valve turns off. Thereafter, when vacuum decreases below the assigned vacuum volume, vacuum solenoid valve will turn on again. Vacuum solenoid valve subsequently turns on/off repeatedly until digital input was turned off.

When digital signal was turned off, blow-off solenoid valve turns on and start to blow-off.

By monitoring vacuum pressure as described above, air consumption will be dramatically reduced because air supply is no longer required during the time when pressure was holding at the assigned pressure volume.

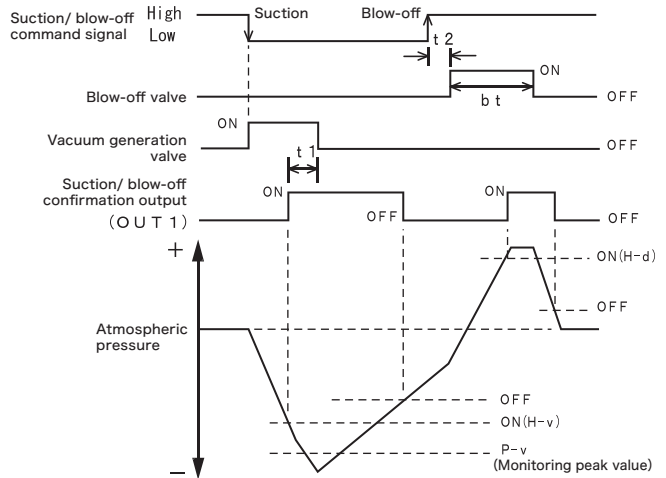


CONVUM Timer off Mode (Suction Mode 2)

Digital input (suction demand signal) turns on the vacuum solenoid valve to generate vacuum so that suction can be started.

Once OUT1 becomes ON upon reaching the assigned vacuum volume, vacuum solenoid valve turns off.

On this mode, the vacuum solenoid valve does not turn on again regardless of the value of vacuum pressure. Digital signal turns off the vacuum solenoid valve, the blow-off solenoid valve turn on and start to blow-off.

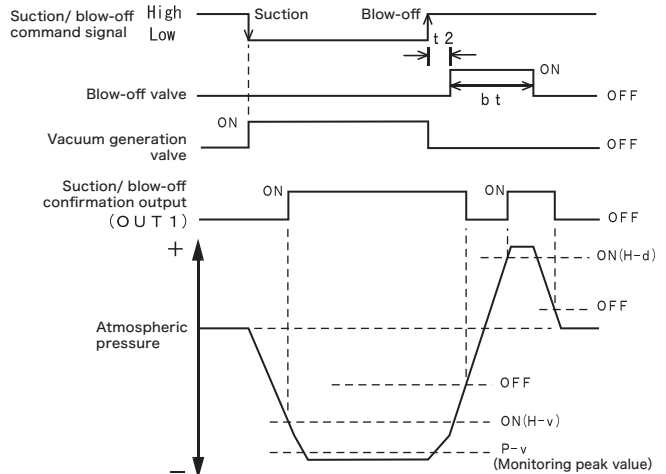


CONVUM Vacuum Valve Keeping ON Mode (Suction Mode 3)

Suction command signal turns on the vacuum solenoid valve to generate vacuum so that suction can be started.

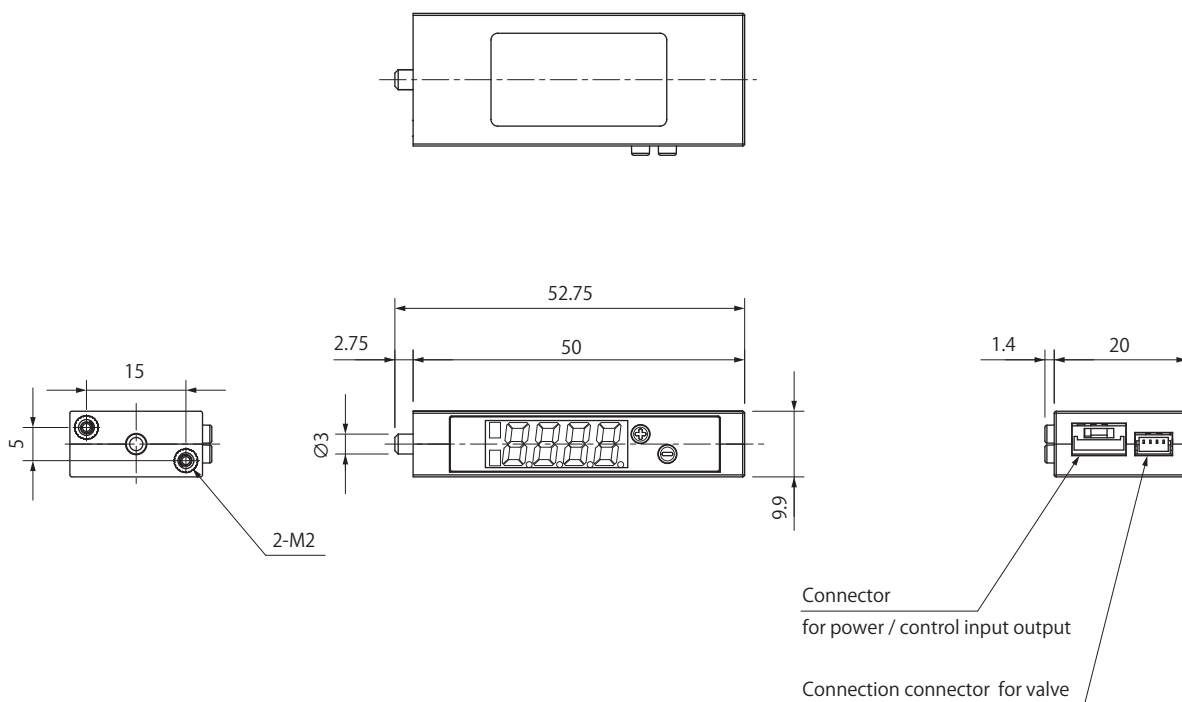
Upon reaching the preset vacuum, OUT1 becomes ON. Vacuum solenoid valve remains ON regardless of the value of vacuum pressure.

Digital signal turns off the vacuum solenoid valve, the blow-off solenoid valve turn and start to blow-off.



Dimensions

(mm)



■ Connector Cable (MPS-10CC)

