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

MPS – V 34 R – N G A

① Pressure range

V	Vacuum
P	Positive
R	Compound

② Port size

R	R1/8(male)
N	NPT1/8(male)
G	G1/8(male)

③ Output type

| N | NPN open collector |
| P | PNP open collector |

④ Cable

| G | Grommet (2000m cable) |
| C | M8 (4PIN) plug (2000mm) |

⑤ Analog option

| A | 1 ~ 5V Voltage output(standard) |
| I | 4 ~ 20mA Current output |

Note) Option I is for positive and Vacuum pressure only.

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 scews(M3) set.

M8 cable of MPS–34

MPS–AMB4R–PVC–2M

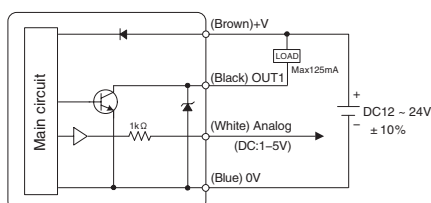Cable of 4 lead wires cable (2000mm length) with M8 connector.

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		℃	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 point 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		
	Current output	mA	4 ~ 20 ± 2.5%, linearity less than ± 1 % of F.S		
			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℃ , range 0 ~ 50℃)		
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			L2, F2 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 it does not output.
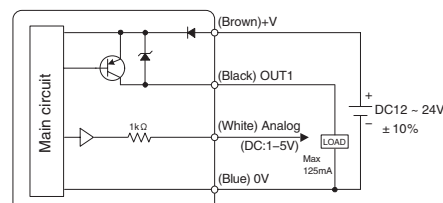Note 2) Current output type is available for Vacuum type (V) and Positive pressure type (P) only.
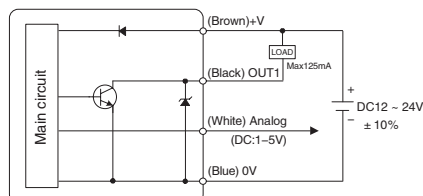
Internal circuit
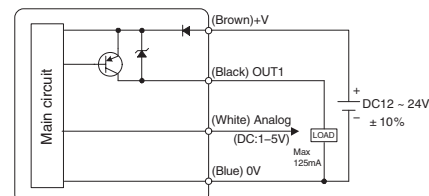
NPN output (Analog voltage output)
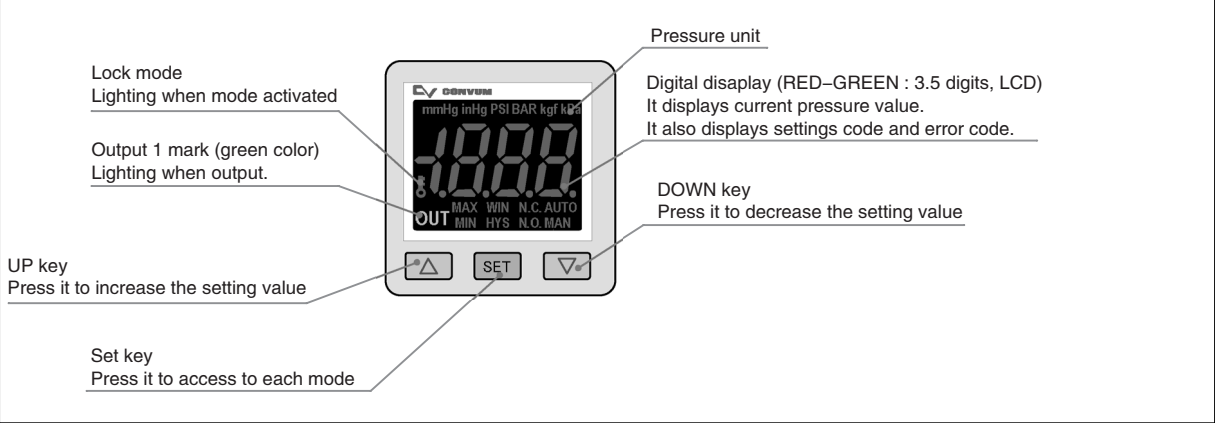

PNP output (Analog voltage output)

NPN output (Analog current output)
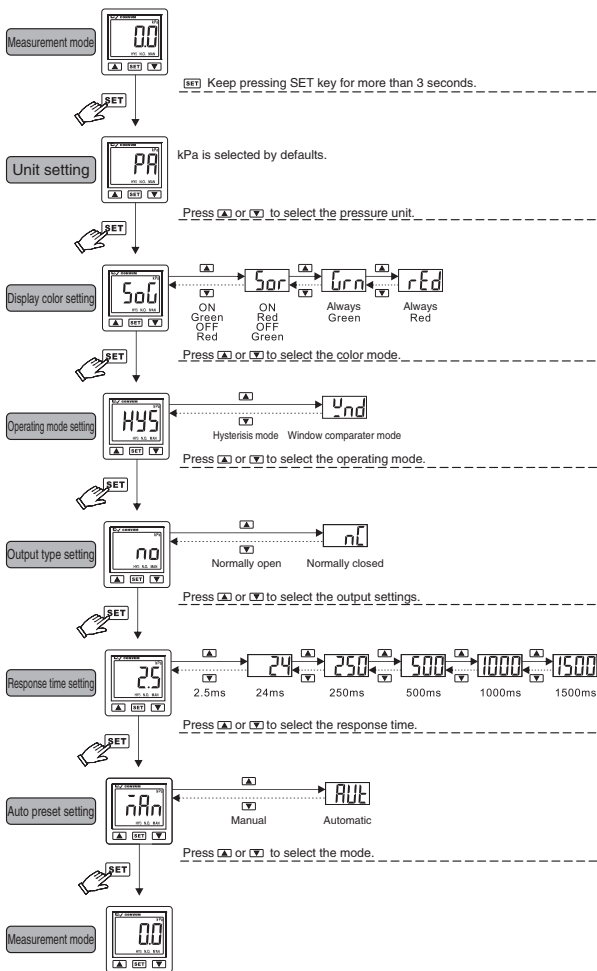

PNP output (Analog current output)

Pressure sensors

Display description

Pressure unit

Lock mode
Lighting when mode activated

Digital disaplay (RED−GREEN : 3.5 digits, LCD)
It displays current pressure value.
It also displays settings code and error code.

Output 1 mark (green color)
Lighting when output.

DOWN key
Press it to decrease the setting value

UP key
Press it to increase the setting value

Set key
Press it to access to each mode

Setting method

Please refer to the instruction manuals for details

Initial settings mode

Measurement mode

SET Keep pressing SET key for more than 3 seconds.

Unit setting — kPa is selected by defaults.

Press ▲ or ▼ to select the pressure unit.

Display color setting

SoG → Sor → Grn → rEd

ON Green OFF Red / ON Red OFF Green / Always Green / Always Red

Press ▲ or ▼ to select the color mode.

Operating mode setting

HYS ↔ Und

Hysterisis mode / Window compararer mode

Press ▲ or ▼ to select the operating mode.

Output type setting

no ↔ nC

Normally open / Normally closed

Press ▲ or ▼ to select the output settings.

Response time setting

2.5 ↔ 24 ↔ 250 ↔ 500 ↔ 1000 ↔ 1500

2.5ms / 24ms / 250ms / 500ms / 1000ms / 1500ms

Press ▲ or ▼ to select the response time.

Auto preset setting

nAn ↔ AUt

Manual / Automatic

Press ▲ or ▼ to select the mode.

Measurement mode

Manual settings

Hysterisis mode

Measurement mode

P_1 / n_1 (*1) ←→ (Alternately displayed) 100 (*2)

H ←→ (Alternately displayed) 10 (*2)

Measurement mode

Window comparator mode

Measurement mode

P_1 / n_1 (*1) ←→ (Alternately displayed) 100 (*2)

P_2 / n_2 (*1) ←→ (Alternately displayed) 200 (*2)

H ←→ (Alternately displayed) 10 (*2)

Measurement mode

Note)

1. When normally open mode is selected, it displays [P_*], when normally closed mode is selected, it displays [n_*].
2. Pressure value change:
   When pressing one time to ▲ , one digit increases.
   When keeping pressing to ▲ , setting value keep increasing.
   When pressing one time to ▼ , one digit decreases.
   When keeping pressing to ▼ , setting value keep decreasing.
3. After finishing the settings of the output type, press SET to switch with pressure value setting mode.
   If 10 seconds pass within pressing any key, it switches automatically with pressure value setting mode.

Auto setting mode

Measurement mode

AP1 / An1 (*1) (*2)   Prepare air for auto setting

A1L   Under this mode, the device needs to be set repeatedly in order to reach the auto setting value.

Measurement mode

$$P1(n1) = A - \frac{A-B}{4}$$

$$H = \frac{A-B}{2}$$

[Calculation of setting value]
A=The max. pressure value udner auto setting mode
B=The min. pressure value udner auto setting mode

Note)

1. When normally open mode is selected, it displays [AP1], when normally closed mode is selected, it displays [An1].
2. If auto pressure value setting is not needed, press ▲ and ▼ at the same time to switch with measurement mode.

Pressure sensors
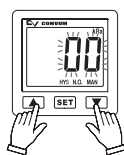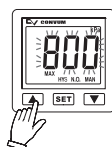
Other settings

① Zero reset setting:

Press ▲ and ▼ at the same time until the
"00" is displayed.
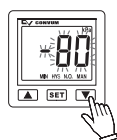Release the keys to end the settings.

② The MAX. value display mode

Keep pressing ▲ for 2 seconds to enter the
MAX. value mode.
Pressure sensor will detect the MAX. value
and keep display.
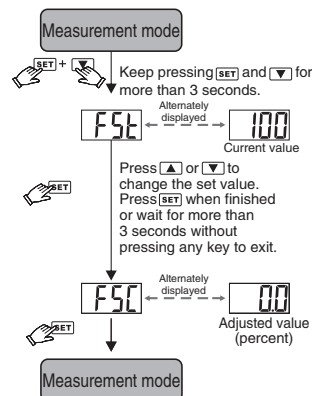Press ▲ for 2 seconds to return to
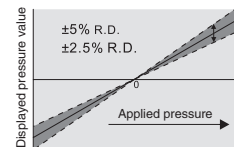measurement mode.

③ The MIN. value display mode

Keep pressing DOWN ▼ 2 seconds to enter
the MIN. value mode.
Pressure sensor will detect the MIN. value and
keep display.
Press ▼ for 2 seconds to return to
measurement mode.

④ Fine adjustment mode

Measurement mode

SET + ▼   Keep pressing SET and ▼ for
more than 3 seconds.

F5t Alternately displayed I00
Current value

SET   Press ▲ or ▼ to
change the set value.
Press SET when finished
or wait for more than
3 seconds without
pressing any key to exit.

F5C Alternately displayed 0.0
Adjusted value
(percent)

Measurement mode

This function eliminates sight differences
in the output values and allows
uniformity in the numbers displayed.
Displayed values of the pressure sensor
can be calibrated to within ±5% for
MPS–P34/MPS–R34 and ±2.5% fore
MPS–V34.

±5% R.D.
±2.5% R.D.

Displayed pressure value
Applied pressure

— : Factory setting diaplay value
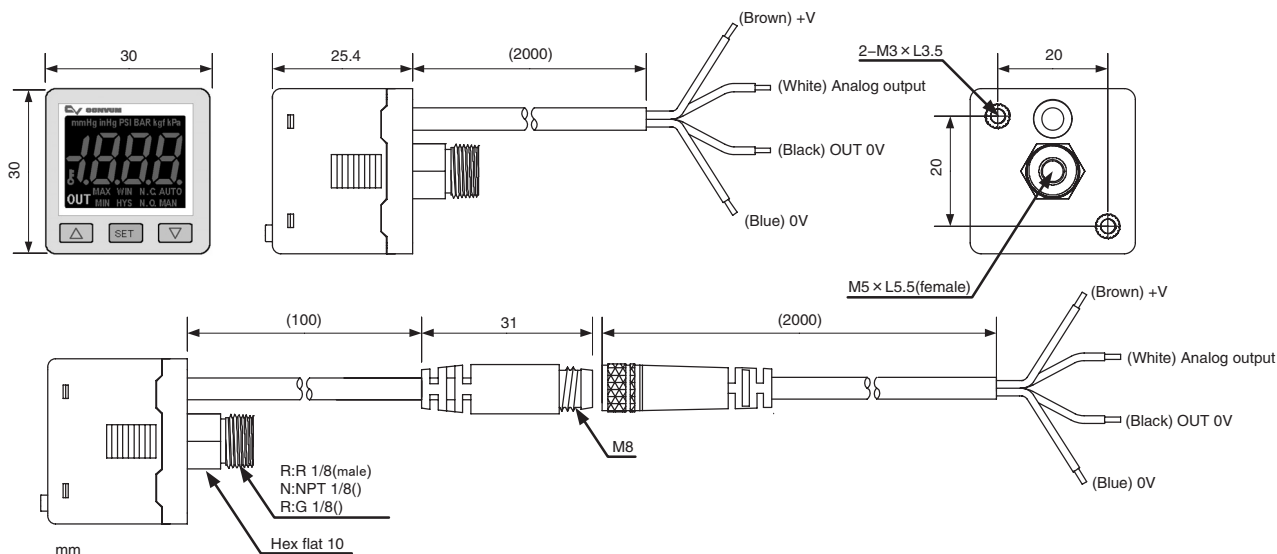set prior to shipment
▨ : Display calibration range

Note)
MPS–P34: When display unit is in Mpa, setting
resolution is 0.001MPa.
MPS–R34: When display unit is in kpa, setting
resolution is 1kPa.
MPS–V34: When display unit is in kpa, setting
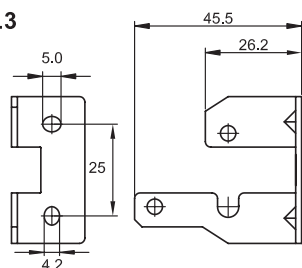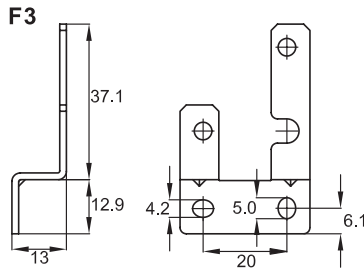resolution is 0.1kPa.

Dimensions
(mm)

30
25.4
(2000)
(Brown) +V
(White) Analog output
(Black) OUT 0V
(Blue) 0V
30
2–M3 × L3.5
20
20
M5 × L5.5(female)

(100)
31
(2000)
(Brown) +V
(White) Analog output
(Black) OUT 0V
(Blue) 0V
M8
R:R 1/8(male)
N:NPT 1/8()
R:G 1/8()
Hex flat 10
mm

L3 bracket fitting

L3
5.0
45.5
26.2
25
4.2

F3 bracket fitting

F3
37.1
12.9
13
4.2   5.0
20
6.1

Surface mounting panel
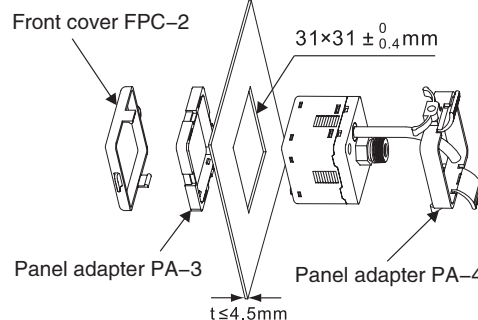
Front cover FPC–2
$31 \times 31 \pm_0^0{}_{.4}$ mm
Panel adapter PA–3
Panel adapter PA–4
t ≤ 4.5mm

Pressure sensors