Head-separated Dual Display Digital Pressure Sensor For Gas

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* Passed the UL 991 Environment Test

UL 61010C-1 compatible, Passed the UL 991 Environment Test based on SEMI S2-0200. [Category applicable for semiconductor manufacturing: TWW2, Process Equipment] [Applicable standards: UL 61010C-1] [Additional test / evaluation standards as per intended use: UL 991, SEMI S2-0200]



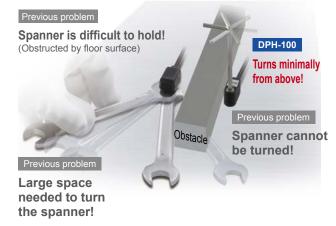




Single axis type Direct installation using a hexagonal wrench

Breakthrough construction

Obstructions can be avoided and installation from above can be done much more easily using a hexagonal wrench. This also eliminates wasted installation space and contributes to a smaller installation footprint.



Flexible design! Sensor heads can be embedded New concept

Because the bolts can be turned from directly above, embedding the sensor heads into narrow spaces is possible. In addition, the flat installation leaves no worries for danger of objects striking against the sensor and damaging it.



Quick maintenance

During maintenance, the sensor head needed to be removed can be easily removed from directly above.



DPH-100

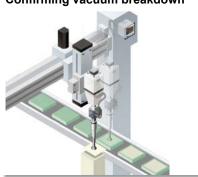
Remove and install the required sensor head directly.



To remove ③, you have to remove the sensors in order starting from ①.

APPLICATIONS

Confirming vacuum breakdown



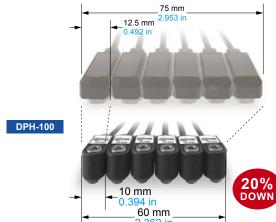
Confirming reference pressure

Air-leak test

Mounting space-saving

Space saving during installation





Because the dead zone caused by the nut is eliminated, the narrowed-down thickness after installation contributes to space saving.

For compound pressure

Easy adjustment

Sensor heads can be turned after installation



After installation, you can alter the cable direction with the pressure port still secured in place. In addition, the cable does not get twisted during installation.

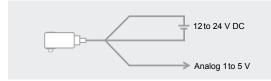
Separate analog voltage output for each sensor head



The analog voltage output from the sensor head can be picked up directly.



Independent use of sensor head possible



Sensor head line-up 3 types of pressure range -100 kPa 0 kPa 100 kPa 1 MPa For vacuum pressure For positive pressure

Stainless steel pressure ports come in 3 shapes



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Pressure/ Digital Display

DPC-L100/ DPH-L100 DPS-400/ DPH-100

Dual display + Direct setting

Equipped with a 30 mm 1.181 in square compact-sized dual display.

"Current value" and "Threshold value" can be checked at the same time.

The threshold value can be changed in RUN mode directly.



Main display

Wall display



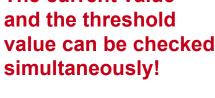
Threshold value

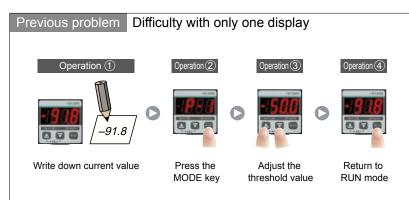
Sub display

The current value and the threshold

Because direct setting is possible

Operation is as easy as analog







High-speed response time at 500 μ s

Reduced tact time. Response time contributes to even greater productivity.

Response time at 500 µs



The controller's setting operation mode has a 3-level configuration to suit the frequency of use

The setting levels are clearly separated into "RUN mode" for operation settings that are carried out daily, "MENU SETTING mode" for basic settings, and "PRO mode" for special and detailed setting. These make setting operations easy to understand and easy to carry out.

Simple setting MENU SETTING mode PRO mode Special and detailed setting

RUN mode



Settings such as threshold value adjustment and key lock operation can be carried out while the sensor is operating.

MENU SETTING mode



Basic settings such as output mode setting and NO/NC switching can be carried out.

PRO mode



High-level function settings such as hysteresis adjustment and the copy function can be carried out.

3-color display lets you view the controller status at a glance

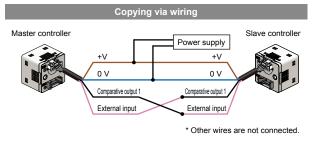
The main display color switches between green and red in accordance with the ON/OFF status of output during RUN mode. In addition, the display always appears orange while setting is in progress, so that the status of the controller can be viewed at a glance.

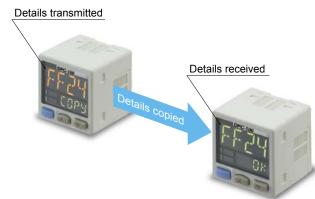




Copy function reduces man-hours and human error

Controllers can be connected to a master controller one by one, and a copy of the setting details for the master controller can be transmitted as data to the slave controllers. If making the same settings for multiple controllers, this prevents setting errors from occurring with the other controllers and also reduces the number of changes required to instruction manuals when equipment designs are changed.





Sensor head auto-recognition

The controller will automatically recognize sensor heads when they are connected, even for sensor heads with different rated pressure ranges. There is no need to use the controller to change settings.



1 model to suit a wide variety of applications

DPC-100 original functions



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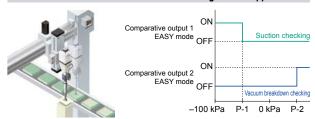
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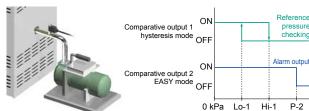
Equipped with independent two output and three output modes

Equipped with two independent comparative outputs, and separate sensing modes can be selected for each of them. Two comparative outputs are provided, so that one of the outputs can be used as a warning output. In addition, if an output is not being used, it can be disabled.

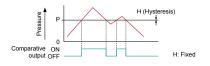
Vacuum breakdown can also be checked during suction applications!





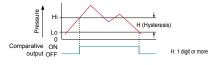


This mode is used for comparative output ON/OFF control



Notes: 1) Hysteresis can be fixed to one of eight different levels P- (" appears in the sub display for comparative output 1, and " P-2 appears for comparative output 2

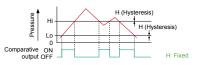
This mode is used for setting comparative output hysteresis to the desired level and for carrying out ON/



" appears in the sub display for comparative output 1, and "H " or appears for comparative output 2.

Window comparator mode

This mode is used for setting comparative output ON and OFF at pressures within the setting range.



Notes: 1) Hysteresis can be fixed to one of eight different levels 2) " $H_1 = I$ " or " $L_0 = I$ " appears in the sub display for comparative output 1, and " \mathcal{H}_{i} - \mathcal{L} " or " \mathcal{L}_{0} - \mathcal{L} " appears for comparative output 2.

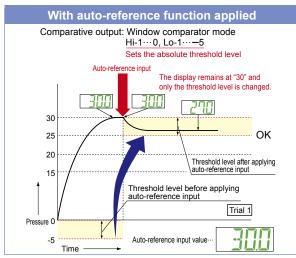
Equipped with auto-reference/remote zero-adjustment functions, More precise pressure management is possible with a minimum of effort

If the reference pressure of the device changes, the autoreference function partially shift the comparative output judgment level by the amount that the reference pressure shifts, and the remote zero-adjustment function can reset the display value to zero via external input. These functions are ideal for places where the reference pressure fluctuates wildly, or where fine settings are desired.

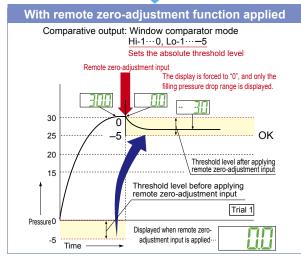


Without auto-reference and remote zero-adjustment functions Comparative output: Window comparator mode Hi-1···30, Lo-1···25 Fixed set value 40 NG? 30 Leak threshold level OK 25 20 NG? 15 Variation in the filling pressure rial: Pressure

Because the threshold level is fixed for conventional pressure sensors, changes in the reference pressure result in wrong



When auto-reference input is applied, the reference pressure "30" is added to the threshold level. If the reference pressure changes to "20" or "40", the auto-reference input compensates for this every time by changing the threshold level, so any variation in the filling pressure can



When remote zero-adjustment input is applied, the reference pressure is forced to "0"

If the reference pressure changes to "20" or "40", the remote zero-adjustment input adjusts the reference pressure to "0" every time the reference pressure changes, so any variation in the filling pressure can be ignored.

Sub display can be customized

The sub display can be set to indicate any other desired values or letters apart from the threshold value. This eliminates the need for tasks such as affixing a label to the device to indicate the normal pressure value.





Tight installation to panels is possible

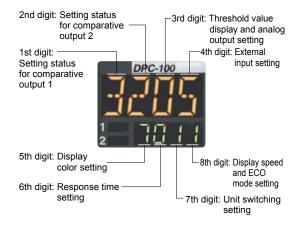
An exclusive mounting bracket (MS-DP1-2) that is suitable for 1 to 6 mm 0.039 to 0.236 in panel thickness is available.



A single mounting hole!

Setting details can be understood at a glance

The **DPC-100** setting details appear in the digital display. Because the settings are in numeric form that can be easily understood, it is useful for times such as when receiving technical support by telephone.

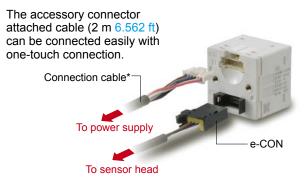


An exclusive mounting bracket (MS-DP1-6) that supports tight installation is available

Space saving can also be obtained if an L-shaped mounting bracket is used.



Power supply cable can be connected with one-touch connection



* Options: 5 m 16.404 ft type is also available.

Types without connector attached cable are also available DPC-10-J

Commercially-available connectors can be used for cable connections. Only the required length of cable needs to be used, which contributes to a reduced amount of wastage for unneeded cable.



* Refer to p.760 for recommended commercially-available connectors.

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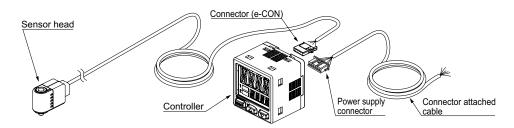
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PRODUCT CONFIGURATION



ORDER GUIDE

Sensor heads

Туре	Appearance	Rated pressure range	Model No.	Pressure port	Applicable fluid
			DPH-101	R1/8 male thread + M5 female thread	
Compound pressure			DPH-101-M3	M3 male thread	
P	DPH-10□-M3(-R)	_100.0 to +100.0 kPa	DPH-101-M5	M5 male thread	
Bending-	Oll	-100.0 to +100.0 kFa	DPH-101-R	R1/8 male thread + M5 female thread	
resistant			DPH-101-M3-R	M3 male thread	Air, non-corrosive gas
cable			DPH-101-M5-R	M5 male thread	
Daniti a managan	DPH-10□(-R)	0 to +1.000 MPa	DPH-102 (Note)	R1/8 male thread + M5 female thread	
Positive pressure			DPH-102-M5	M5 male thread	
Bending- resistant cable			DPH-102-M5-R	M5 male thread	
			DPH-103	R1/8 male thread + M5 female thread	
Vacuum pressure			DPH-103-M3	M3 male thread	
		0.1: 404.01.0:	DPH-103-M5	M5 male thread	
Bending-		0 to –101.0 kPa	DPH-103-R	R1/8 male thread + M5 female thread	
resistant			DPH-103-M3-R	M3 male thread	
cable			DPH-103-M5-R	M5 male thread	

Note: The bending-resistant cable type of **DPH-102** is not available.

5 m 16.404 ft cable length type

5 m 16.404 ft cable length type (standard: 2 m 6.562 ft) is also available. When ordering this type, suffix"-C5" to the Model No. (e.g.) 5 m 16.404 ft cable length type of **DPH-103-M5-R** is "**DPH-103-M5-R-C5**"

Controllers

Appearance	Rated pressure range	Model No.	Comparative output
2000 2000 1000 1000 1000 1000 1000 1000	Compound pressure: –100.0 to +100.0 kPa Positive pressure: 0 to +1.000 MPa	DPC-101	NPN open-collector transistor
* CN-66A-C2 (Connector attached cable 2 m 6.562 ft) is attached.	Vacuum pressure: 0 to –101.0 kPa	DPC-101-P	PNP open-collector transistor

Type without connector attached cable

Type without connector attached cable **CN-66A-C2** is available. When ordering this type, suffix "-**J**" to the Model No. (e.g) Type without connector attached cable of **DPC-101-P** is "**DPC-101-P-J**"

Accessory

CN-66A-C2 (Connector attached cable 2 m 6.562 ft)



OPTIONS

Designation	Model No.	Description			
Sensor head connector (e-CON)	CN-EP2 (Note 1) 5 pcs. per set	Connector for connecting sensor head controller			
Connector	CN-66A-C2 (Note 2)	Length 2 m 6.562 ft	Controller power supply / I-O cable. 0.2 mm ² 6-core oil-resistant cabtyre cable		
attached cable	CN-66A-C5	Length 5 m 16.404 ft			
Power supply connector	CN-66A 5 pcs. per set	Connector for controller power supply / I-O cable.			
Controller mounting bracket	MS-DP1-6	Allows sensors to be installed on the wall. Multiple sensors can also be mounted closely.			
Panel mounting bracket	MS-DP1-2	Allows installation to panels with thickness of 1 to 6 mm 0.039 to 0.236 in. Multiple sensors can also be mounted closely.			
Front protection cover	MS-DP1-3	Protects the adjustment surfaces of controllers. (Can be attached when using the panel mounting bracket)			

Notes: 1) One is attached to each sensor head according to standard.

2) The connector attached cable CN-66A-C2 is supplied with the controller according to standard.

Sensor head connector (e-CON)

· CN-EP2



Note: One is attached to each sensor head according to standard.

Connector attached cable

- · CN-66A-C2
- · CN-66A-C5



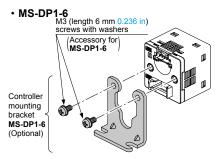
Note: The connector attached cable CN-66A-C2 is supplied with the controller according to standard.

Power supply connector

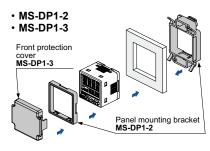
· CN-66A



Controller mounting bracket



Panel mounting bracket, Front protection cover



Recommended e-CON

Model No.: 1473562-4 (Manufactured by Tyco Electronics Japan G.K.) Note: Contact the manufacturer for details of the recommended products.

Recommended power supply connector

Contact: SPHD-001T-P0.5, Housing: PAP-06V-S (Manufactured by J.S.T. Mfg.Co., Ltd.) Note: Contact the manufacturer for details of the recommended products.

Recommended crimping tool

Model No.: YC-610R (Manufactured by J.S.T. Mfg. Co., Ltd.) Note: Contact the manufacturer for details of the recommended products. FIBER SENSORS

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SPECIFICATIONS

Sensor heads

Typo		Со	mpound press	ure	Positive	pressure	Va	acuum pressu	re	
`		Туре		±100 kPa type)	1 MP	a type	-	–101 kPa type)
Item	1	Model No.(Note 3)	DPH-101(-R)	DPH-101-M3(-R)	DPH-101-M5(-R)	DPH-102	DPH-102-M5(-R)	DPH-103(-R)	DPH-103-M3(-R)	DPH-103-M5(-R)
CE n	narking d	lirective compliance				EMC Directive,	RoHS Directive			
Туре	of pres	sure				Gauge	pressure			
Rate	d pressu	ure range	– 1	00.0 to +100.0 k	Pa	0 to +1.	000 MPa		0 to –101.0 kPa	ı
Pres	sure witl	hstandability		500 kPa		1.5	MPa		500 kPa	
Appl	icable flu	uid				Air, non-co	rrosive gas			
Supp	oly volta	ge			12 to 24	4 V DC ±10 %	Ripple P-P 10 %	or less		
Curr	ent cons	umption				15 mA	or less			
Analog voltage output			Zero point: wi wi Span: within Linearity: witl	ge: 1 to 5 V (over ithin 1 V \pm 2.5 % F ithin 3 V \pm 3 % F. 4 V \pm 3.5 % F.S. hin \pm 0.5 % F.S. dance: 1 k Ω appi	F.S. (vacuum / po S. (compound pr	sitive pressure t	ype) 5 + (x) 3 1 1	(High pressure (positive / compour High vacuum (vacuum pressure	
a)	Protect	tion	IP40 (IEC)							
Environmental resistance	Ambier	nt temperature	0 to +50 °C +32 to +122 °F (No dew condensation allowed), Storage: -10 to +60 °C +14 to +140 °F							F
resis	Ambier	nt humidity	35 to 85 % RH, Storage: 35 to 85 % RH							
ntal	Voltage	e withstandability	1,000 V AC for one min. between all supply terminals connected together and enclosure							
nme	Insulati	ion resistance	50 M Ω , or more, with 500 V DC megger between all supply terminals connected together and enclosure							
nviro	Vibratio	on resistance	10 to 500 Hz frequency, double amplitude 3 mm 0.118 in or maximum acceleration 196 m/s², in X, Y and Z directions for two hours each							
ш	Shock	resistance	1,000 m/s ² acceleration (100 G approx.) in X, Y and Z directions three times each							
Tem	perature	characteristics	Over ambient temperature range 0 to +50 °C +32 to +122 °F: within ±2 % F.S. of detected pressure at +25 °C +77 °F							
Pres	sure por	t	DPH-10 □(- R): R¹/ ₈ male thread + M5 female thread, DPH-10 □- M3 (- R): M3 male thread (for installing gasket) DPH-10 □- M5 (- R): M5 male thread (for installing gasket)							
Mate	erial		Front case: PBT, Rear case: PBT (glass fiber reinforced), Pressure port: Stainless steel (SUS303), O-ring: NBR Pressure element: Silicon diaphragm, PPS							
Connecting method		Connector								
Cable		0.2 mm ² 4-core oil resistant cabtyre cable (Models with "-R" affixed to the Model No. have flexible, oil-resistant cabtyre cable)								
Cabl	e extens	sion		Exten	sion up to total 1	0 m 32.808 ft is	possible with 0.	2 mm ² , or more,	cable.	
\\\o:a	,ht	Net weight	DPH-10	ı(-R): Head 10 g	approx. / Cable	40 g approx., Di	PH-10□-M3/M5(-	R): Head 6 g app	prox. / Cable 40	g approx.
Weig	jill	Gross weight			DPH-10□(-R): 8	30 g approx., DF	PH-10□-M3/M5(-l	R): 70 g approx.		
Acce	essory					Connector (e-CON): 1 pc.			
Notes	: 1) Whe	ere measurement co	anditions have n	not heen specifie	d precisely the o	conditions used	were an amhient	temperature of	+25 °C +77 °F	

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +25 °C +77 °F.

²⁾ The sensor head can be used independently.
3) Model No. having the suffix "-R" is bending-resistant cable type. The bending-resistant cable type of **DPH-102** is not available.

SPECIFICATIONS

Controllers

/	Туре	NPN output type	PNP output type				
Iten	Model No.	DPC-101	DPC-101-P				
CE	marking directive compliance	EMC Directive,	RoHS Directive				
App	licable sensor head	DPH-101□, DPH-102□, DPH-103□					
Rat	ed pressure range (Note 2)	Compound pressure: -100.0 to +100.0 kPa, Positive press	sure: 0 to +1.000 MPa, Vacuum pressure: 0 to -101.0 kPa				
Set	pressure range (Note 2)	Compound pressure: -199.9 to +199.9 kPa (-1.999 to +1.999 kgf/cm², -19.98 to Positive pressure: -1.050 to +1.050 MPa (-10.71 to +10.71 kgf/cm², -152.2 Vacuum pressure: +101.3 to -101.3 kPa (+1.033 to -1.033 kgf/cm², +14.70 t	to +152.2 psi, -10.50 to +10.50 bar)				
Sup	ply voltage	12 to 24 V DC ±10 % F	Ripple P-P 10 % or less				
Pov	ver consumption	Normal operation: 960 mW or less (Current cons ECO mode (STD): 720 mW or less (Current con ECO mode (FULL): 600 mW or less (Current con Excluding the current consumption of sensor her	sumption 30 mA or less at 24 V supply voltage) nsumption 25 mA or less at 24 V supply voltage)				
Sen	sor head supply voltage	Same as su	pply voltage				
	nparative outputs mparative output 1, 2)	NPN open-collector transistor (2 outputs) • Maximum sink current: 100 mA • Applied voltage: 30 V DC or less (between comparative output and 0 V) • Residual voltage: 2 V or less (at 100 mA sink current)	PNP open-collector transistor (2 outputs) • Maximum source current: 100 mA • Applied voltage: 30 V DC or less (between comparative output and +V) • Residual voltage: 2 V or less (at 100 mA source current)				
	Output operation	NO/NC, selectable	e by key operation				
	Output modes	EASY mode / Hysteresis mod	e / Window comparator mode				
	Hysteresis	Minimum 1 digit (variable) (howe	ever, 2 digits when using psi unit)				
	Repeatability	With vacuum / positive pressure type connected: within ± 0.2 % F.S. (± 2 digits) With compound pressure type connected: within ± 0.2 % F.S. (± 4 digits)					
	Response time	0.5 ms, 1 ms, 2.5 ms, 5 ms, 10 ms, 25 ms, 50 ms, 100 ms, 250 ms, 500 ms, 1,000 ms, 5,000 ms, selectable by key operation					
	Short-circuit protection	Incorporated					
Analog output		<analog output="" voltage=""> Output current: 1 to 5 V DC Zero point: within 1 V ±0.5 % F.S.</analog>	<analog current="" output=""></analog>				
	Sensor head input	Input voltage range: 1 to 5 V D	OC (over rated pressure range)				
Inputs	External input (Auto-reference function/ Remote zero-adjustment)	ON voltage: 0.4 V DC or less OFF voltage: 5 to 30 V DC, or open Input impedance: 10 kΩ approx. Input time: 1 ms or more	ON voltage: 5 V to +V DC OFF voltage: 0.6 V DC or less, or open Input impedance: 10 kΩ approx. Input time: 1 ms or more				
Disp	olay	4 digits + 4 digits 3-color LCD display (Display refresh rate	2: 250 ms, 500 ms, 1,000 ms, selectable by key operation)				
	Displayable pressure range	Vacuum pressure: +5.1 to -101.3 kPa, Positive pressure: -0.0	50 to +1.020 MPa, Compound pressure: -101.3 to +105.0 kPa				
Орє	eration indicator	Orange LED (Comparative output 1 operation indicator, comparative outp	out 2 operation indicator: Lights up when each comparative output is ON				
	Protection	IP40	(IEC)				
Jce	Ambient temperature	-10 to +50 °C +14 to +122 °F (No dew condensation of	r icing allowed), Storage: -10 to +60 °C +14 to +140 °F				
sistaı	Ambient humidity	35 to 85 % RH, Stor	rage: 35 to 85 % RH				
al re	Voltage withstandability	1,000 V AC for one min. between all supply	terminals connected together and enclosure				
ment	Insulation resistance	50 M Ω , or more, with 500 V DC megger between all	supply terminals connected together and enclosure				
Environmental resistance	Vibration resistance	10 to 500 Hz frequency, double amplitude 3 mm 0.118 in or maximum acceleration 196 m/s², in X, Y and Z directions for two hours each (when panel mounting bracket is mounted: 10 to 150 Hz frequency, double amplitude 0.75 mm 0.030 in or maximum acceleration 49 m/s², in X, Y and Z directions for two hours each (when panel mounting bracket is mounted: 10 to 150 Hz frequency, double amplitude 0.75 mm 0.030 in or maximum acceleration 49 m/s², in X, Y and Z directions for two hours each (when panel mounting bracket is mounted: 10 to 150 Hz frequency, double amplitude 0.75 mm 0.030 in or maximum acceleration 49 m/s², in X, Y and Z directions for two hours each (when panel mounting bracket is mounted: 10 to 150 Hz frequency, double amplitude 0.75 mm 0.030 in or maximum acceleration 49 m/s², in X, Y and Z directions for two hours each (when panel mounting bracket is mounted: 10 to 150 Hz frequency, double amplitude 0.75 mm 0.030 in or maximum acceleration 49 m/s², in X, Y and Z directions for two hours each (when panel mounting bracket is mounted: 10 to 150 Hz frequency, double amplitude 0.75 mm 0.030 in or maximum acceleration 49 m/s², in X, Y and Z directions for two hours each (when panel mounting bracket is mounted: 10 to 150 Hz frequency, double amplitude 0.75 mm 0.030 in or maximum acceleration 49 m/s², in X, Y and Z directions for two hours each (when panel mounted bracket is mounted by the panel mounted bracket is mounted by the panel m					
	Shock resistance	100 m/s² acceleration (10 G approx.) in	X, Y and Z directions three times each				
Ten	perature characteristics	Within ±0.5 % F.S. (ambient tempera	ature range based on +20 °C +68 °F)				
Mat	erial	Enclosure: PBT (glass fiber reinforced), LCD display: Acrylic, Mount	ing threaded part: Brass (nickel plated), Switch part: Silicone rubbe				
Cor	necting method	Conn	ector				
Cab	le length	Total length up to 100 m 328.084 ft is	possible with 0.3 mm ² , or more, cable.				
Wei	ght	Net weight: 25 g approx. (excluding connector	attached cable), Gross weight: 140 g approx.				
Acc	essories	CN-66A-C2 (Connector attached cable	2 m 6.562 ft), Pressure unit label: 1 set				
_							

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +20 °C +68 °F.

2) It changes automatically according to the connected pressure sensor head.
3) The values specified above are applied only to the controller.

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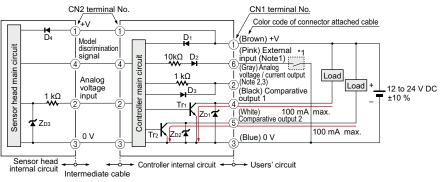
Selection Guide Pressure/ Digital Display Pressure/ Head-separated

DPC-L100/ DPH-L100 DPS-400/ DPH-100 DPC-100/ DPH-100

I/O CIRCUIT AND WIRING DIAGRAMS

DPC-101 NPN output type

I/O circuit diagram



Notes: 1) Select and use the auto-reference function and remote zero-adjustment function.

- 2) Set the output load resistance during analog current output to 250 Ω (max.)
- 3) Note that a voltage of 5 V or higher is generated during analog current output.

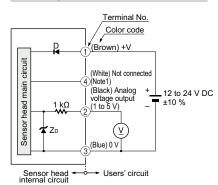
Symbols ... D1 to D4 : Reverse supply polarity protection diode ZD1 to ZD3: Surge absorption zener diode Tr1, Tr2 : NPN output transistor

Non-voltage contact or NPN open-collector transistor

or

High (5 to 30 V DC, or open): Invalid
Low (0.4 V DC or less): Valid

For independent use of sensor head



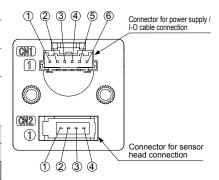
Notes: 1) In case the sensor head is used independently, insulate the white lead wire (terminal No.4) and keep it open.

2) When the sensor head is used independently, devices connected to the analog output must have an input impedance set at $50 \text{ k}\Omega$ or more.

Symbols ... D : Reverse supply polarity protection diode

ZD: Surge absorption zener diode

Terminal arrangement diagram



Connector for power supply / I-O cable (CN1)

- ① +V
- 2 Analog voltage/current output
- 3 0 V
- Comparative output 1
- ⑤ Comparative output 2
- External input (auto-reference function / remote zero-adjustment function)

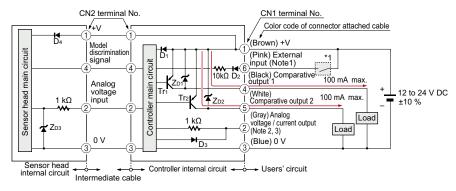
Connector for sensor head (CN2)

- 1 Sensor head power supply
- ② Analog voltage input
- 3 0 V
- 4 Model discrimination signal

I/O CIRCUIT AND WIRING DIAGRAMS

DPC-101-P PNP output type

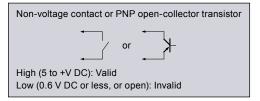
I/O circuit diagram



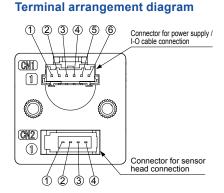
Notes: 1) Select and use the auto-reference function and remote zero-adjustment function.

- 2) Set the output load resistance during analog current output to 250 Ω (max.)
- 3) Note that a voltage of +5 V or higher is generated during analog current output.

Symbols ... D1 to D4 $\,\,$: Reverse supply polarity protection diode ZD1 to ZD3: Surge absorption zener diode Tr1, Tr2 : PNP output transistor



Connector for power supply / I-O cable (CN1)

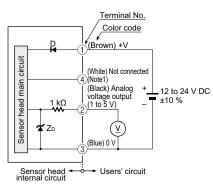


- ① +V
- 2 Analog voltage/current output
- 3 0 V
- 4 Comparative output 1
- (5) Comparative output 2
- 6 External input (auto-reference function / remote zero-adjustment function)

Connector for sensor head (CN2)

- 1 Sensor head power supply
- ② Analog voltage input
- 3 0 V
- (4) Model discrimination signal

For independent use of sensor head



Notes: 1) In case the sensor head is used independently, insulate the white lead wire (terminal No.4) and keep it open.

2) When the sensor head is used independently, devices connected to the analog output must have an input impedance set at 50 k Ω or more.

Symbols ... D : Reverse supply polarity protection diode
ZD: Surge absorption zener diode

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Selection Guide Pressure/ Digital Display Pressure/ Head-separated

DPC-L100/ DPH-L100 DPS-400/ DPH-100 DPC-100/ DPH-100

PRECAUTIONS FOR PROPER USE

Refer to p.1566 for general precautions.

 Never use this product as a sensing device for personnel protection.

- In case of using sensing devices for personnel protection, use products which meet laws and standards, such as OSHA, ANSI or IEC etc., for personnel protection applicable in each region or country.
- The DPH-100 series is designed for use with air and non-corrosive gas. It cannot be used with liquid or corrosive and inflammable gases.

Part description

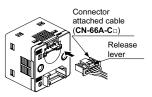


Wiring

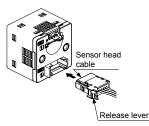
- Make sure that the power supply is off while wiring.
- Verify that the supply voltage variation is within the rating.
- If power is supplied from a commercial switching regulator, ensure that the frame ground (F.G.) terminal of the power supply is connected to an actual ground.
- In case noise generating equipment (switching regulator, inverter motor, etc.) is used in the vicinity of this sensor, connect the frame ground (F.G.) terminal of the equipment to an actual ground.
- Do not run the wires together with high-voltage lines or power lines or put them in the same raceway. This can cause malfunction due to induction.
- · Incorrect wiring will cause problems with operation.

Connection

 Do not apply stress directly to the connection cable leader or to the connector.



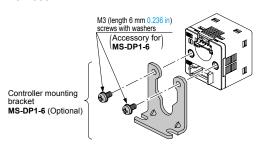
<Connector of connector attached cable> Housing: PAP-06V-S [Manufactured by J.S.T Mfg. Co. Ltd.]



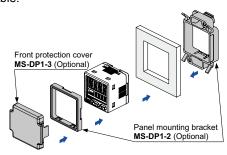
<Connector of sensor head cable> e-CON: 1473562-4 [Manufactured by Tyco Electronics Japan G.K.]

Mounting

 When tightening the controller to the controller mounting bracket MS-DP1-6 (optional), use a tightening torque of 0.5 N·m or less.



 The MS-DP1-2 panel mounting bracket (optional) and the MS-DP1-3 front protection cover (optional) are also available.



Pipina

 Use a hexagonal wrench to install sensor head. For the tightening torque, refer to the following diagram. If excessive tightening torque is applied, the pressure port of the sensor head or the M5 male screw of the commercial coupling will get damaged. In case of R1/8 male thread type, wrap sealing tape around the coupler when connecting to prevent leakage.



Pressure port	Hexagonal wrench (bolt width)	Tightening torque
R1/8 male thread	5 mm 0.197 in	9.8 N⋅m or less
M3 male thread	3 mm 0.118 in	0.8 N⋅m or less
M5 male thread	3 IIIII 0.718 III	1.5 N·m or less

Others

- · Use within the rated pressure range.
- Do not apply pressure exceeding the pressure withstandability value. The diaphragm will get damaged and correct operation shall not be maintained.
- Do not use during the initial transient time (controller: 0.5 sec. approx, sensor head: 50 ms approx.) after the power supply is switched on.
- Avoid dust, dirt, and steam.
- Take care that the sensor does not come in direct contact with water, oil, grease, or organic solvents, such as, thinner, etc.
- Do not insert wires, etc., into the pressure port. The diaphragm will get damaged and correct operation shall not be maintained.
- Do not operate the keys with pointed or sharp objects.

PRECAUTIONS FOR PROPER USE

Refer to p.1566 for general precautions.

RUN mode

• This is the normal operating mode.

Setting item	Description
Threshold value setting	The threshold values for ON/OFF operation can be changed directly by pressing the increment key (UP) and the decrement key (DOWN).
Zero-adjustment function	This forces the pressure value display to be reset to zero when the pressure port is open on the atmospheric pressure side.
Key lock function	Stops key operations from being accepted.
Peak hold / bottom hold function	Displays the peak value and bottom value for fluctuating pressure. The peak value appears in the main display, and the bottom value appears in the sub display.

MENU SETTING mode

- If the mode selection key is pressed and held for 2 sec. in RUN mode, the mode will switch to MENU SETTING mode.
- If the mode selection key is pressed while a setting is being made, the mode will switch to RUN mode. In this case, the settings that have been changed will be entered.

Setting item	Description
Comparative output 1 output mode setting	Sets the output mode for comparative output 1.
Comparative output 2 output mode setting	Sets the output mode for comparative output 2.
Analog voltage/current output selection	Selects analog voltage output or analog current output.
External input selection	Selects auto-reference function, or remote zero-adjustment function.
NO/NC selection	Normally open (NO) or normally closed (NC) can be selected.
Response time setting	Sets the response time. The response time can be selected from 0.5 ms, 1 ms, 2.5 ms, 5 ms, 10 ms, 25 ms, 50 ms, 100 ms, 250 ms, 500 ms, 1,000 ms and 5,000 ms.
Display color switching for main display	Allows the color for the main display to be changed. The colors can be set to "red/green" or "green/red" to correspond to ON/OFF output, or it can be fixed at "red" or "green" all the time.
Unit switching	Pressure unit can be changed.

PRO mode

- If the mode selection key is pressed and held for 5 sec. in RUN mode, the mode will switch to PRO mode.
- If the mode selection key is pressed while a setting is being made, the mode will switch to RUN mode. In this case, the settings that have been changed will be entered.

Setting item	Description
Sub display switching	Changes the information in the sub display during RUN mode operation to the current pressure unit, number and desired alphanumeric display.
Display refresh rate switching	Changes the display refresh rate for the pressure value displayed in the main display.
Hysteresis fix value switching	Sets the hysteresis for EASY mode and window comparator mode. (8 steps)
Linked display color switching	Allows the display color for the main display to be switched in line with the output operation for comparative output 1 or comparative output 2.
External input relation selection	The setting contents set at the external input selection in MENU SETTING mode can be shifted to correspond to either comparative output 1, 2 or 1 / 2.
ECO mode setting	Allows power consumption to be reduced by dimming the display or turning it off.
Setting check code	Allows the setting details to be checked via codes. (Refer to below)
Setting copy mode	Allows the setting details for the master controller to be copied to slave controllers.
Reset setting	Resets the settings to the factory settings.

Table of codes

	digit	≥na	digit	3rd	digit	4th	digit
Comparative output 1 output mode	NO/NC selection	Comparative output 2 output mode	NO/NC selection	Analog output	Threshold display	Externa	al input
FACV	NO	OFF			Threshold value 1	OFF	_
EAST	NC	FACV	NO Analog	Analog	Threshold value 2		Comparative output 1
	NO	NO EAST NC voltage		Threshold value 3	Auto-	Comparative output 2	
Hysteresis	NC	Hysteresis	NO	output	Threshold value 4	reference	Comparative output 1/2
Window	NO]	NC		Threshold value 1		Comparative output 1
comparator	NC	MC- d	NO	Analog	Threshold value 2		Comparative output 2
_	_	comparator	NC	current output	Threshold value 3	adjustment	Comparative output 1/2
_	_	_	_		Threshold value 4	_	_
	EASY Hysteresis Window	EASY	NO	EASY NO OFF — NC NC EASY NO Hysteresis NC Hysteresis NO Window NO NC window NO NO Window NO NO	EASY	EASY	EASY NO OFF — NO Analog output Window Comparator NC Window Comparator — Comparator NC NC Comparator NC NC NC Comparator NC NC NC Comparator NC NC NC NC NC Comparator NC

е	5th	digit	6th digit	7th digit	8th	digit			
Code	Displayed color of the main display	Displayed color relation	Response time	Unit selection (Note)	Display refresh rate	Eco mode			
0	Red when ON	Comparative output 1	0.5 ms	MPa		OFF			
1	Red Wilell ON	Comparative output 2	1 ms	kPa	250 ms	STD			
2	Green when ON	Comparative output 1	2.5 ms	kgf/cm ²		FULL			
3	Green when ON	Comparative output 2	5 ms	bar		OFF			
Ч	Almena	Comparative output 1	10 ms	psi	500 ms	STD			
5	Always red	Comparative output 2	25 ms	mmHg		FULL			
5	Alwaya aroon	Comparative output 1	50 ms	inHg		OFF			
7	Always green	Comparative output 2	100 ms	_	1,000 ms	STD			
8	_	_	250 ms	_		FULL			
9	_	_	500 ms	_	_	_			
R	_		1,000 ms	_		_			
8	_	_	5,000 ms	_	_	_			

Note: When positive pressure type of the pressure sensor head is connected to the controller for use inside Japan, "[]" (MPa) or " []" (kPa) is displayed. When compound pressure type or vacuum pressure type is connected, only " []" (kPa) is displayed.

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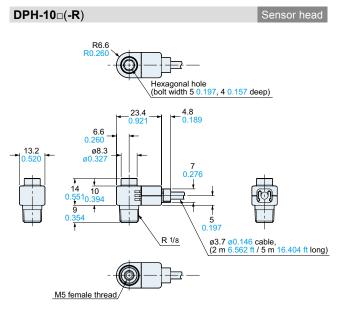
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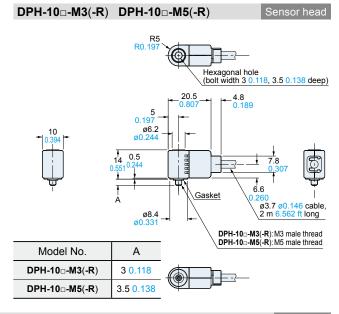
Selection Guide Pressure/ Digital Display Pressure/ Head-separated Flow

DPC-L100/ DPH-L100 DPS-400/ DPH-100 DPC-100/ DPH-100

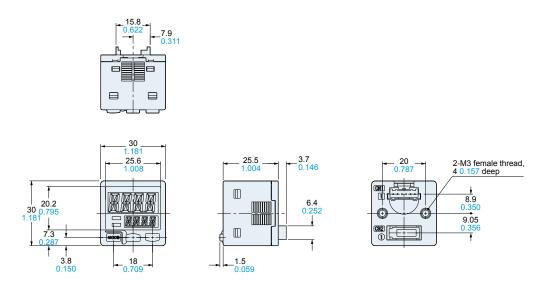
DIMENSIONS (Unit: mm in)

The CAD data can be downloaded from our website.



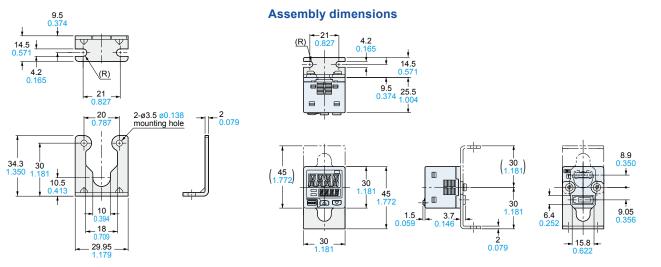


DPC-101(-P) Controller



MS-DP1-6

Controller mounting bracket (Optional)



Material : Cold rolled carbon steel (SPCC) (Trivalent uni-chrome plated)
Two M3 (length 6 mm 0.236 in) screws with washers are attached.

DIMENSIONS (Unit: mm in)

The CAD data can be downloaded from our website.

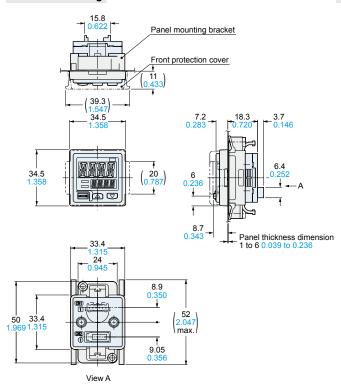
MS-DP1-2 MS-DP1-3

Panel mounting bracket (Optional), Front protection cover (Optional)

Assembly dimensions

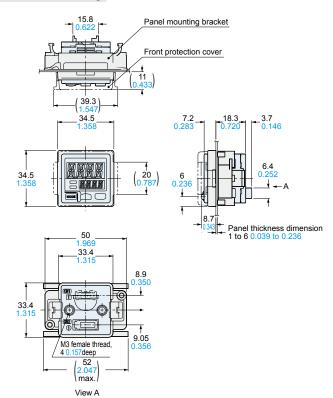
Mounting drawing with DPC-101

Vertical mounting



Material: Polyacetal (Panel mounting bracket)
Polycarbonate (Front protection cover)

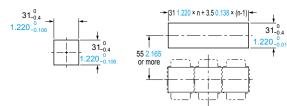
Horizontal mounting



Panel cut-out dimensions

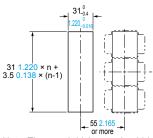
When 1 unit is installed

When "n" units are installed horizontally in series



Note: The panel thickness should be 1 to 6 mm 0.039 to 0.236 in.

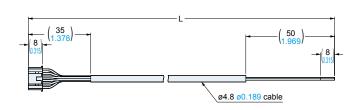
When "n" units are installed vertically in series



Note: The panel thickness should be 1 to 6 mm 0.039 to 0.236 in.

CN-66A-C2 CN-66A-C5

Connector attached cable (Optional, CN-66A-C2 is attached to the controller)



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Model No.	Length L
CN-66A-C2	2,000 78.740
CN-66A-C5	5,000 196.850

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