Panasonic ideas for life

NEW

Head-separated Dual display For gas & liquid

DIGITAL PRESSURE SENSOR

Controller DPC-L100 SERIES Sensor head DPH-L100 SERIES



Featuring exceptional resistance to...



Interference

The DPC-L100 and DPH-L100 comply with EMC directives, ensuring they won't succumb to external interference.

Pressure surges

An integrated throttle prevents damage from

Vibrations and mechanical shock

The DPC-L100 and DPH-L100 are easy to use with devices that are subject to high levels of

Water and dust

The DPC-L100 and DPH-L100 feature an IP67compliant protective enclosure. (IEC)

Fluid heat

The DPC-L100 and DPH-L100 can accommodate media at temperatures of up to 125°C (10 MPa and 50 MPa models).

All-stainless-steel construction

- Suitable for use with a wide range of fluidsOil-less diaphragm



Illustration **SUS630**

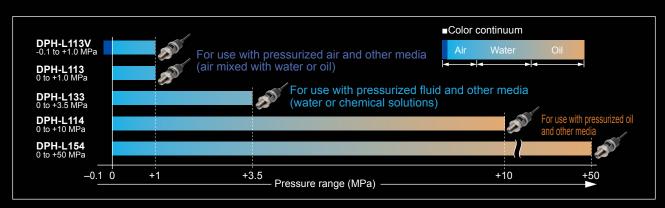
Single-layer diaphragm

High-precision pressure control at a system accuracy of within 1% F.S.

The sensor head generates analog voltage output, allowing it to be used in a standalone configuration.

System accuracy: ±1 % F.S. (at 23°C) (Throughout operating ambient temperature range: ±2 % F.S.) Analog voltage 1 MPa type

Product line



Simple

Introducing a controller that's as simple to operate as it is compact



Buttons generate a distinct "click" that can be felt through gloves.

Dual display

Direct setting

Direct setting of threshold value

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

The threshold value can be changed in RUN mode directly.



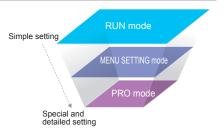
3-color display (Red, Green, Orange)

The main display changes color in line with changes in the status of output ON / OFF operation, and it also changes color while setting is in progress. The sensor status can therefore be understood easily, and operating errors can be reduced.



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.



Applications



Management of plastic filling machine pressure (pressurized fluid)



Management of press pressure (pressurized oil)

Full range of performance and functions in a compact body

1 model to suit a wide variety of applications

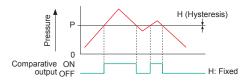


Equipped with independent dual output

Equipped with two independent comparative outputs, and separate sensing modes can be selected for each of them. Since there are two comparative outputs, one of the comparative outputs can even be used for alarm output. In addition, if an output is not being used, it can be disabled.

1 EASY mode

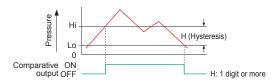
This mode is used for comparative output ON / OFF control.



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

2 Hysteresis mode

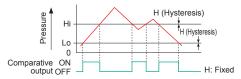
This mode is used for setting comparative output hysteresis to the desired level and for carrying out ON / OFF control.



Note: "Hr - 1" or "La-1" appears in the sub display for comparative output 1, and "Hr -2" or "La-2" appears for comparative output 2.

3 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) " H₁ - \(\lambda \) " \(\lambda \) - \(\lambda \) " appears in the sub display for comparative output 1, and " H₁ - \(\rac{2} \) " or " \(\lambda \) - \(\rac{2} \)" appears for comparative output 2.

Equipped with auto-reference / remote zero-adjustment functions

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.

With auto-reference function applied

Comparative output: Window comparator mode Hi-1...0, Lo-1...-5

Auto-reference input
The display remains at "30" and only the threshold level is changed.

OK

Threshold level after applying auto-reference input

Threshold level after applying auto-reference input

Auto-reference input value.

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 be ignored.

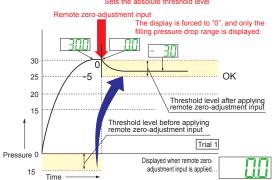
With remote zero-adjustment function applied

Time

Comparative output: Window comparator mode

Hi-1...0, Lo-1...-5

Sets the absolute threshold level



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.

Copy function reduces man-hours and human error

Copy of the setting details for the master sensor can be transmitted as data to the other sensors. If making the same settings for multiple sensors, this prevents setting errors from occurring with the other sensors and also reduces the number of changes required to instruction manuals when equipment designs are changed.



Energy-saving design! Equipped with an ECO mode

This mode lowers the display luminance to cut power consumption.



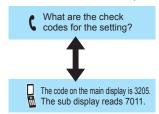


30 mA or less



Setting details can be understood at a glance

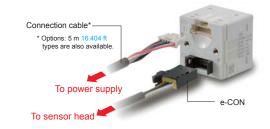
The setting details (output, response time and external input, etc.) appear in the digital display. Because the settings are in numeric form that can be easily understood.





Power supply cable can be connected with one-touch connection

The accessory connector attached cable (2 m 6.562 ft) can be connected easily with one-touch connection



Hold functions

Peak / Bottom hold 1 (standard)

The peak values and bottom values for fluctuating pressures can be displayed using the dual display.

Blinds alternately

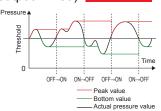






■ Peak / Bottom hold 2 (output-linked) NEW FEATURE

When output turns on (or off), the controller's digital display (current value) is reset and peak / bottom hold operation starts. For example, this functionality could be used to verify the peak pressure for an industrial press each time a workpiece is loaded.



Current value hold NEW FEATURE

The controller's digital display (current value) is held while external input is on. By activating external input the moment you wish to capture the pressure value, you can pause and verify the display.





Hold

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.

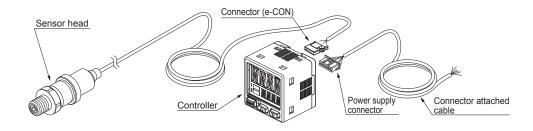




Pressure sensor line-up



PRODUCT CONFIGURATION



ORDER GUIDE

Sensor heads

Туре	Appearance	Rated pressure range	Model No.	Pressure port	Applicable fluid
Compound pressure		-0.1 to +1.0 MPa	DPH-L113V		Gases and fluids that do not corrode stainless steel SUS304, SUS630, or SUSXM7
		0 to +1.0 MPa	DPH-L113		
Davidi a anna anna		0 to +3.5 MPa	DPH-L133		
Positive pressure		0 to +10 MPa	DPH-L114		
		0 to +50 MPa	DPH-L154		

Controllers

Appearance	Model No.	Comparative output		
335	DPC-L101	NPN open-collector transistor		
* CN-66A-C2 (Connector attached cable 2 m 6.562 ft) is attached.	DPC-L101-P	PNP open-collector transistor		

Type without connector attached cable

Type without connector attached cable is available. When ordering this type, suffix "-J" to the Model No. (e.g) Type without connector attached cable of **DPC-L101-P** is "**DPC-L101-P-J**".

Accessory

• CN-14A-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.	
attached cable	CN-66A-C5	Length 5 m 16.404 ft	0.2 mm² 6-core oil-resistant cabtyre cable with connector	
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)		
Copy unit	SC-SU1	Copies controlle	er setting details to other controllers.	

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.

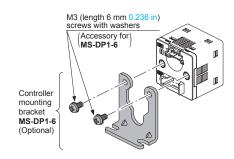
Power supply connector

· CN-66A



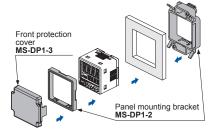
Controller mounting bracket

• MS-DP1-6



Panel mounting bracket, Front protection cover

- MS-DP1-2
- MS-DP1-3



Copy unit

· SC-SU1



Recommended e-CON

Model No.: 1473562-4 (Manufactured by Tyco Electronics) 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.

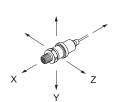
SPECIFICATIONS

Sensor heads

		Tuno	Compound pressure Positive pressure					
		Туре	-0.1 to 1 MPa type	1 MPa type	3.5 MPa type	10 MPa type	50 MPa type	
Ite	m \	Model No.	DPH-L113V	DPH-L113	DPH-L133	DPH-L114	DPH-L154	
Type of pressure		;		Sealed gauge pressure (Note 4)				
Rated pressure range		range	-0.1 to +1 MPa	0 to +1 MPa	0 to +3.5 MPa	0 to +10 MPa	0 to +50 MPa	
Pressure withstandability		ndability	2 MPa	2 MPa	7 MPa	20 MPa	75 MPa	
Applicable fluid			Gases and fluids that do not corrode SUS630, SUS304, or SUSXM7					
Supply voltage			9 to 36 V DC [9 to 32 V DC when using the attached connector (e-CON)]					
Analog voltage output		output	Accuracy: ±	Output voltage: 1 to 5 V DC (over rated pressure range) Accuracy: ±1.0 % F.S. (at 23 ±2 °C +73.4 ±35 °F) ±2.0 % F.S. (at 2-20 to 70 °C -4 to +158 °F) (including linearity, hysteresis and repeatability) Output voltage: 1 to 5 V DC (over rated pressure Accuracy: ±1.0 % F.S. (at 23 ±2 °C +73.4 ±35 °F) ±2.0 % F.S. (at 2-20 to 125 °C -4 to +158 °F) (including linearity, hysteresis and repeatability)			±2 °C +73.4 ±35 °F) 0 to 125 °C -4 to +158 °F)	
	Protection		IP67 (IEC)					
Environmental resistance	Ambient tem	nperature	-20 to +70 °C -4 to +158 °F (No dew condensation allowed), Storage: -30 to +70 °C -22 to +158 °F		-20 to +80 °C (Pressure port: -20 to +125 °C -4 to +257 °F, No dew condensation allowed), Storage: -30 to +100 °C -22 to +212 °F [e-CON connector (accesory): -20 to +75 °C -4 to +167 °F (Storage: -30 to +75 °C -22 to +167 °F)			
ıntal	Ambient hur	midity	35 to 85 % RH, Storage: 35 to 85 % RH					
nme	Medium tem	perature range	-20 to +70 °C -4 to +158 °F			-20 to +125 °C -4 to +257 °F		
invir	Voltage with	standability	150 V AC for one min. between all supply terminals connected together and enclosure					
ш	Insulation re	esistance	100 MΩ, or more, with 50 V DC megger between all supply terminals connected together and enclosure					
	Vibration res	sistance	20 to 400 Hz frequency, amplitude 3 mm 0.118 in or maximum acceleration 150 m/s², in X derection for four hours, in Y and Z directions for two hours each (Note 5)					
Shock resistance		tance	500 m/s ² acceleration in X, Y and Z directions for three times each					
Grounding method		od	Capacitor earth (Enclosure-supply terminal)					
Pressure port			R1/4 male thread (throttle embeded)					
Material			Diaphragm: Stainless steel (SUS603), Pressure port: Stainless steel (SUS304), Throttle: Stainless steel (SUSXM7)					
Connecting method		nod	Connector					
Cable			0.2 mm² 3-core heat resistant cabtyre cable 2 m 3.562 ft long					
Cable extension			Extension up to total 10 m 32.808 ft is possible with 0.2 mm², or more, cable.					
Weight			Net weight: 100 g approx., Gross weight: 150 g approx.					
Acc	essory		Connector (e-CON): 1 pc.					
Notes: 1) Where measurement			panditions have not been precified precisely the conditions used were an ambient temperature of £22 °C ±72.4 °E					

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +23 °C +73.4 °F.

The sensor head can be used independently.
 Oil is used in the factory inspection process for models DPH-L114 and DPH-L154. There may be some residual oil inside the pressure port.
 The sensor's internal mechanism is sealed based on an air pressure of 1,013 hPa.
 The X, Y, and Z directions are defined as follows:



SPECIFICATIONS

Controllers

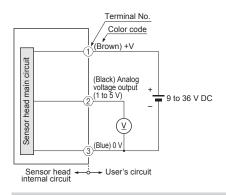
Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +20 °C +68 °F.

2) The values specified above are applied only to the controller.

I/O CIRCUIT AND WIRING DIAGRAMS

DPH-L1

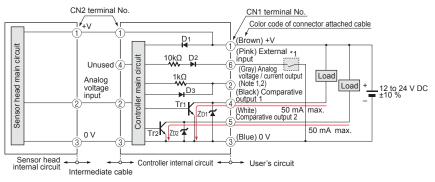
For independent use of sensor head



Notes: 1) When the sensor head is used independently, devices connected to the analog output must have an input impedance set at 10 $k\Omega$ or more and load capacity 1,000 pF or less.

- 2) No short-circuit protection circuit is provided for analog voltage output. Do not connect directly to a power supply.
- 3) The pressure port and internal circuitry are connected by a capacitor. Do not apply voltage in excess of the specifications' dielectric strength between the pressure port and wiring.
- 4) The transparent tube attached to the cable is not used and should be cut off at the base.

DPC-L101 NPN output type



Notes: 1) Set the output load resistance during analog current output to 250 Ω (max.).

Note that a voltage of 5 V or higher is generated during analog current output.

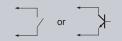
Symbols

Reverse supply polarity protection diode D₁ to D₃

Surge absorption zener diode Z_{D1}, Z_{D2}

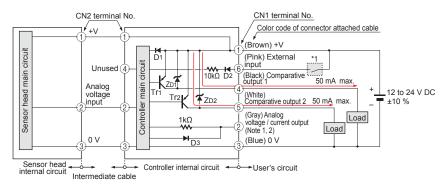
: NPN output transistor Tr1, Tr2

Non-voltage contact or NPN open-collector transistor



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

DPC-L101-P PNP output type



Notes: 1) Set the output load resistance during analog current output to 250 Ω (max.).

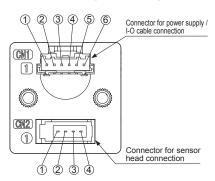
2) Note that a voltage of 5 V or higher is generated during analog current output.

Symbols D₁ to D₃ Reverse supply polarity protection diode Surge absorption zener diode Zn1, Zn2 : PNP output transistor Tr1, Tr2

Non-voltage contact or PNP open-collector transistor

High (5 to +V DC, or open): Invalid Low (0.6 V DC or less, or open): Valid

Terminal arrangement diagram



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 / current value hold function)

Connector for sensor head (CN2)

- ① Sensor head supply voltage
- ② Analog voltage input ③ 0 V ④ Unused

PRECAUTIONS FOR PROPER USE

 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-L100 series is designed for use with air and non-corrosive gas. It cannot be used with liquid or corrosive and inflammable gases.

Others

- This product has been developed / produced for industrial use only.
- Never remove the throttle.

Disclaimer

The applications described in the catalog are all intended for examples only.

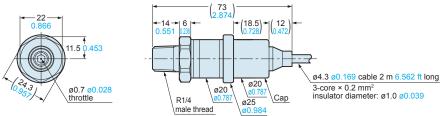
The purchase of our products described in the catalog shall not be regarded as granting of a license to use our products in the described applications.

We do NOT warrant that we have obtained some intellectual properties, such as patent rights, with respect to such applications, or that the described applications may not infringe any intellectual property rights, such as patent rights, of a third party.

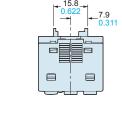
DIMENSIONS (Unit: mm in)

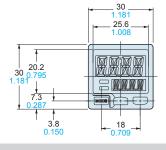
The CAD data in the dimensions can be downloaded from the website: panasonic-electric-works.net/sunx

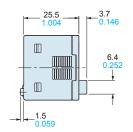
DPH-L1□ Sensor head

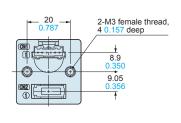


DPC-L101(-P) Controller



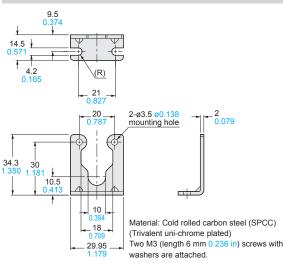




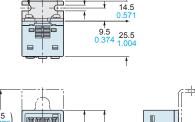


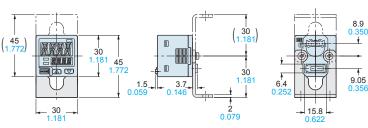
MS-DP1-6

Controller mounting bracket (optional)



Assembly dimensions





DIMENSIONS (Unit: mm in)

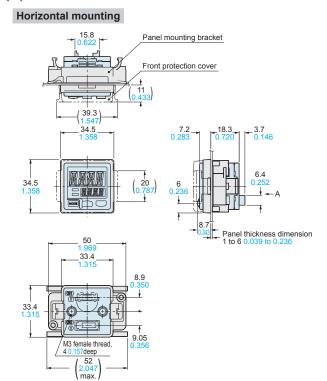
MS-DP1-2 MS-DP1-3

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

Assembly dimensions

Mounting drawing with DPC-L101(-P)

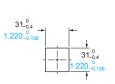
Vertical mounting Panel mounting bracket Front protection cover 39.3 <u>(</u>⊅ (33 4 24 8.9 0.350 52 2.047 max. 33.4 9.05



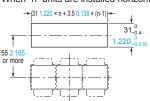
Panel cut-out dimensions

View A

When 1 unit is installed



When "n" units are installed horizontally in series

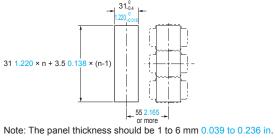


Note: The panel thickness should be 1 to 6 mm 0.039 to 0.236 in.

When "n" units are installed vertically in series

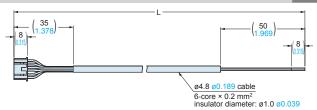
View A

• Length L



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

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



201191112				
Model No.	Length L			
CN-66A-C2	2,000 78.740			
CN-66A-C5	5,000 196.850			

Panasonic Electric Works SUNX Co., Ltd.



- ■Telephone: +81-568-33-7211 ■Facsimile: +81-568-33-2631
- Overseas Marketing Department
- ■Telephone: +81-568-33-7861 ■Facsimile: +81-568-33-8591

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