

Digital Precision Pressure Gauge with Exchangeable Sensor Modules

Reference device with portable case for spans up to 3000 bar

DPG 1031
DPS 1031

Application

The battery-operated digital pressure gauge models DPG 1031 are suitable for measuring positive and negative overpressures of gaseous or liquid media with spans up to 3000 bar.

The DPG 1031 has been specially optimised for flexible use in the service sector and as a pressure reference.

The special feature of this type is the separability of display and pressure sensor, which, in conjunction with an integrated sensor database, allows a wide variety of DPS pressure sensor modules to be connected to just one display device.

The variety of sensor modules in terms of measuring range, process connection and accuracy class opens up completely new, cost-optimised possibilities for the user.

The instrument head can be rotated by 360° on the pressure sensor module (without a stop), which makes it very easy to align the display after the process connection has been sealed.

The components are robust and guarantee IP65.

The high accuracy of the DPS pressure sensor modules and their fine-grained availability allow them to be used as customised reference devices for pressure device calibration in a very wide pressure range.

The "data logger" option with a measuring rate of up to 100 measurements per second is able to record the fastest pressure surges. With the USB interface included in the DPG 1031-L, the stored measurement data can be transferred for evaluation and archiving using the "LILLY-LOG" software.



Standard Versions

Process Connection

Material	stainless steel 1.4404 (1.4542)
Connection thread	G ½ B (DIN EN 837) ≤ 2500 bar ¼" HPF ¾" – 18 UNF 0 – 3000 bar

Measuring Cell / Sensor

≤ 200 bar	stainless steel 316L hermetically sealed, welded
> 200 – 1000 bar	stainless steel 316L, O-ring FKM
> 1000 bar	stainless steel 1.4548 (AISI 630 / 17-4PH), hermetically sealed, electron beam welding

Case

With polished bayonet ring, stainless steel 304 (1.4301), NCS 100 (4"), degree of protection IP65, rotatable

Pressure Ranges, Overload Capability and Burst Pressure

See page 2

Display

Large 2.7" sunlight readable LC graphic display 400 x 240 px
5-digit pressure indication with digit height 14 mm (0.55")
Bargraph with MIN / MAX indication (drag indicator)
Indication medium temperature (°C, °F, off)
Battery status

Functions

32 pressure units and 2 temperature units
1 freely configurable user unit (factor and name)
Piston force assistant
Measuring rate adjustable up to 125 ms
Damping adjustable for pulsation suppression
Zeroing function
Password protection

Supply Voltage

Battery Li-SOCl₂ 3.6 V / 2600 mAh

Battery Life

> 3400 h (with 3 measurements / s)

Measurement Accuracy

≤ 1000 bar	±0.1 % FS	±1 digit
> 1000 bar	±0.25 % FS	±1 digit

Temperature

Operating temperature	–20 °C to +70 °C (–4 °F to +158 °F)
Medium temperature	–20 °C to +85 °C (–4 °F to +185 °F)
Storage temperature	–20 °C to +70 °C (–4 °F to +158 °F)

Temperature Influence

≤ 0.02 % FS / 10 K

Reference Temperature

+25 °C (+77 °F)

Recommended Calibration Interval

1 year (DAKKS-DKD R-6-1 appendix F)

Sample Rate

Adjustable 8 / 5 / 4 / 3 / 2 / 1 measurements / s

Electromagnetic Compatibility

Interference emission EN 61326 group 1 class B
Stability EN 61326 industrial sector

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Options, Special Versions, Accessory, Ordering Information, Measuring Ranges / Overload Capability

Options

- Connection thread ISO 1179-2-G $\frac{1}{4}$ " A-S max. 0 – 600 bar
 $\frac{1}{2}$ " NPT max. 0 – 1600 bar
 $\frac{1}{4}$ " NPT max. 0 – 1600 bar
M20x1.5 max. 0 – 1600 bar
- High-pressure connection $\frac{1}{4}$ " HPF $\frac{9}{16}$ " – 18 UNF 0 – 1600 bar
to 0 – 2500 bar
- Front foil neutral or according to customer request
- Increased measurement accuracy 0.05 % FS¹⁾ at $\leq$ 1000 bar
0.1 % FS¹⁾ at $>$ 1000 bar
- Data logger (DPG 1030-L) memory 86,400 measuring values
 - curve chart of the recorded data in the graphic display
 - interface in the device for data transfer to PC via USB
 - PC software "LILLY-LOG" for data transfer (download)
 - high-speed logging up to a measuring rate of 10 ms (100 measurements / s)

Special Versions Upon Request

Other pressure ranges

Accessory

- 1.80 m data cable for data transfer from the device to the PC
- Transport case for 1 basic unit and up to 9 sensor modules

Ordering Information

Please specify in your order:

Basic model

digital pressure gauge DPG 1031
Option with data logger DPG 1031-L

Basic model

pressure sensor module DPS 1031
Process connection e.g. G $\frac{1}{2}$ B
Pressure range e.g. 0 – 1600 bar
Option e.g. increased accuracy 0.1 % FS

Example

DPG 1031-L with DPS 1031, G $\frac{1}{2}$ B,
0 – 1600 bar

Measuring Ranges / Overload Capability in bar / psi

Measuring range gauge pressure		Overload	
bar	psi	bar	psi
-1 / +1.5	-14.5 / +30	3.5	50
-1 / +3	-14.5 / +60	5.5	80
-1 / +5	-14.5 / +100	9	130
-1 / +9	-14.5 / +160	14	200
-1 / +15	-14.5 / +200	22	320
0 – 2.5	0 – 30	3.5	50
0 – 4	0 – 60	5.5	80
0 – 6	0 – 100	9	130
0 – 10	0 – 160	14	200
0 – 16	0 – 200	20	300
0 – 25	0 – 400	38	550
0 – 40	0 – 600	55	800
0 – 60	0 – 1000	90	1300
0 – 100	0 – 1500	150	2200
0 – 160	0 – 2500	220	3500
0 – 250	0 – 4000	400	6000
0 – 400	0 – 6000	600	9000
0 – 600	–	900	–
0 – 700	0 – 10000	1100	13000
0 – 1000	0 – 15000	1500	20000

Measuring Ranges / Overload Capability in bar / psi

Measuring range gauge pressure		Overload		Burst pressure	
bar	psi	bar	psi	bar	psi
0 – 1600	0 – 20000	2400	30000	6000	85000
0 – 2000	0 – 30000	3000	40000	4000	55000
0 – 2500	–	3700	–	5000	–
0 – 3000	0 – 40000	4000	55000	6000	85000

Measuring Ranges / Overload Capability in bar / psi

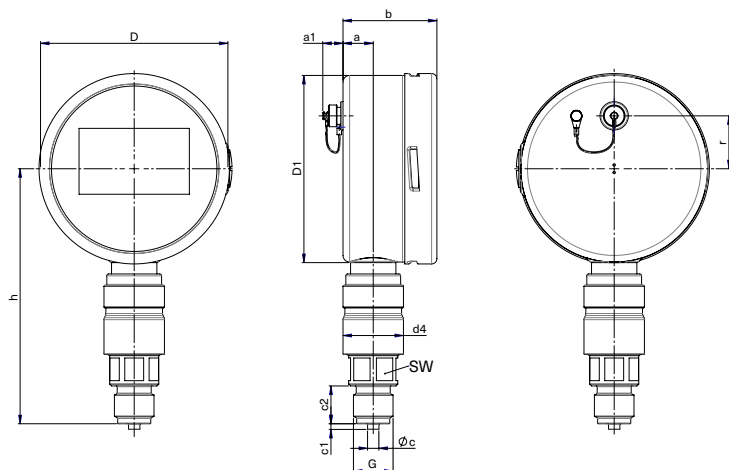
Measuring range absolute pressure		Overload	
bar	psi	bar	psi
0 – 2.5	0 – 30	3.5	50
0 – 4	0 – 60	5.5	80
0 – 6	0 – 100	9	130
0 – 10	0 – 160	14	200
0 – 16	0 – 200	20	300
0 – 25	0 – 400	38	550
0 – 40	0 – 600	55	800
0 – 60	0 – 1000	90	1300
0 – 100	0 – 1500	150	2200

¹⁾ limited temperature range 0 – 50 °C (32 – 122 °F)

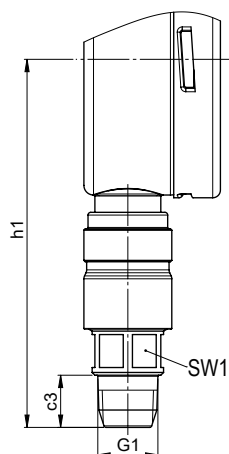
Case Configuration, Dimensional Data and Weight

Process Connection

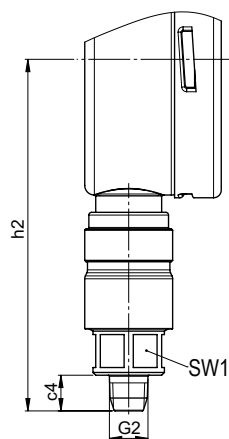
G ½ B, M20x1.5



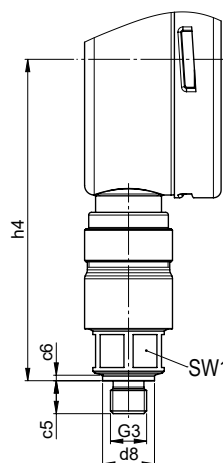
½" NPT



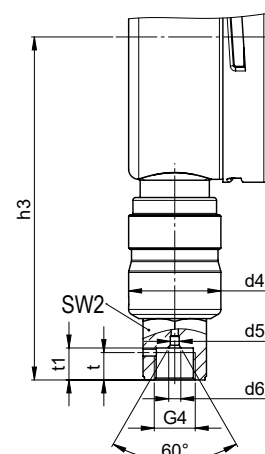
¼" NPT



ISO 1179-2-G ¼" A-S



High-pressure connection ¼" HPF ⅝" – 18 UNF



Dimensional Data (mm / inch) and Weight (kg / lb)

NCS	a	a1	b	c	c1	c2	c3	c4	c5	c6	D	D1	d4	d5	d6	d8
100	16	11	50	6	3 / 0.12 ¹⁾	20	19	13	12	2	101	99	32	3	4	18.9
4"	0.63	0.43	1.97	0.24	5 / 0.2 ²⁾	0.79	0.75	0.51	0.47	0.08	3.98	3.9	1.26	0.12	0.16	0.74

G	G1	G2	G3	G4	h ^{±1}	h1 ^{±1}	h2 ^{±1}	h3 ^{±1}	h4 ^{±1}	r	t	t1	SW1	SW2	approx. weight
G ½ B M20x1.5	½" NPT	¼" NPT	G ¼ A	¼" HPF ⅝" – 18 UNF	135 5.31	134 5.28	128 5.04	119 4.69	117 4.61	28 1.1	9.5 0.37	11 0.43	24 0.94	22 0.87	0.6 1.32

¹⁾ ≤ 1000 bar
²⁾ > 1000 bar