

DPI 104

Druck digital test gauge

Features

- 0.05% full scale (FS) accuracy
- Pressure ranges to 20,000 psi (1400 bar)
- Eleven selectable pressure units
- Large, easy-to-read display with five-digit resolution
- % pressure indication and additional bar graph for quick visual reference
- Temperature compensated accuracy from 14°F to 122°F (-10°C to 50°C)
- 0 to 5V analog output
- Pressure switch test
- Minimum/maximum, tare and alarm functions
- IDOS compatible and RS232 serial interface
- Free of charge monitoring and control software
- Stainless steel or Inconel pressure cavity for aggressive media

Applications

- Process monitoring and control
- Test and calibration

The DPI 104 is a microprocessor-controlled digital pressure gauge that combines precision and functionality in a compact, robust and simple-to-use package. The DPI 104 matches advanced silicon sensor technology with several convenient design features, resulting in an accurate, versatile yet affordable digital test gauge. Supplied as a stand-alone process indicator or in a kit with the widely proven Druck hand pumps, the DPI 104 provides a reliable and economic solution for a wide range of pressure sensing applications.

Druck
a Baker Hughes business

DPI 104 specifications

Accuracy

0.05% FS including non-linearity, hysteresis, repeatability and temperature effects from 14°F to 122°F (-10°C to 50°C)

Resolution

Maximum five digits

Pressure ranges

Range			Resolution		Maximum working pressure	
psi	bar	type	psi	mbar	psi	bar
0-10**	0-0.7	G*	0.001	0.01	11.2	0.77
0-30	0-2	G* or A	0.001	0.1	32	2.2
0-100	0-7	G* or A	0.01	0.1	111.7	7.7
0-300	0-20	G* or A	0.01	1	319	22
0-1000	0-70	G* or A	0.1	1	1117	77
0-3000	0-200	SG	0.1	10	3190	220
0-5000	0-350	SG	0.1	10	5583	385
0-10,000	0-700	SG	1	10	11,165	770
0-15,000	0-1000	SG	1	100	15,950	1100
0-20,000	0-1400	SG	1	100	22,330	1540

*All gauge models will respond to negative pressures.

**0.15% FS for 10 psi (700 mbar) range.

Burst pressure

Burst pressure is 2x working pressure (exception, 20,000 psi (1400 bar); burst pressure 29,000 psi (2000 bar).

Selectable pressure units

kPa, MPa, kg/cm^2, psi, mbar, bar, in Hg, in H_2O, m H_2O, mm H_2O and mm Hg

Display

- Pressure reading: 5 digits with 0.5 in (12.7 mm) character height
- Full scale indicator: 2.5 digits with 0.25 in (6.35 mm) character height

Pressure bar graph

In addition to the numeric pressure indication, the DPI 104 LCD display contains a circular twenty segment bar graph to provide the user with a quick visual estimation of pressure from 0 to 100% full scale output. The bar graph increments represent 5% of the user-selectable range.

Display update

Two times per second

Minimum/maximum values

The minimum and maximum pressure values can be displayed on the DPI 104. This function can be enabled/disabled, and reset by the user.

Switch test

The DPI 104 features a switch test function that will capture and display the open and closed values from an external pressure switch. Maximum switch impedance 200 Ω.

Voltage output

The DPI 104 can be programmed to provide a 0 to 5 V output signal that can be configured as directly proportional to the pressure shown in the display or set to a fixed value. The voltage output mode provides 0.1% FS accuracy from 50 mV to 5 V.

Alarm output

The alarm output consists of an open drain field effect transistor (maximum current 250 mA, maximum voltage 24 VDC).

Adjustable mounting positions

For added convenience, the DPI 104 housing will rotate 320° around the pressure fitting and the faceplate can be rotated in any orientation for optimum visibility.

Menu lock

To guard against unauthorized menu access, the DPI 104 features a menu and tare lock function.

RS232 interface

Serial communications are provided to allow transfer of data to a PC with the optional serial lead (IA4090-2-V0). Using this link, all menu commands and display data are available via an ASCII command set or the optional SiCal Pro Software.

Network capability

Up to 99 DPI 104 instruments can be connected together in a daisy chain-configured network.

Universal Pressure Module (UPM) capability

UPM modules can be connected to the DPI 104 to enhance the accuracy and extend the pressure range.

Battery

The DPI 104 is supplied with a 9V alkaline battery, type MN1604. Battery life is approximately six months when used daily for one hour per day. For increased performance a 9V lithium battery (not supplied by Druck) is suggested.

Pressure port

- 1/4 NPT or BSP male for units to 10,000 psi (700 bar)
- 9/16 x 18 UNF male cone connection 15,000 psi (1000 bar) and 20,000 psi (1400 bar) units

Enclosure

- Case material: ABS/PC plastic sealed to Type 4/ IP65
- Wetted parts: All stainless steel (316) or Inconel welded pressure cavity for compatibility with aggressive media.

European compliance

CE marked

SiCalPro software

This software package allows the user to control the DPI 104 remotely through a virtual instrument panel on the computer screen. The calibration data can be logged, viewed and printed in graphical format or as a calibration certificate. SiCalPro is free to download from the DPI 104 web page at www.bakerhughesds.com/sites/g/files/cozyhq596/files/2019-10/dpi_104_software_sicalpro_0.zip

Option (B) PC serial lead required.

Option (A) external power supply recommended.

System requirements

Minimum Intel Pentium with Windows® 95 or higher

General

Storage temperature

-4°F to 158°F (-20°C to 70°C)

Dimensions

Diameter: 3.74 in (95 mm) excluding pressure fittings

Depth: 2.17 in (55 mm)

Weight

13 oz (350 g) approximate

Mechanical vibration

To Def Stan 66-31, 8.4 Cat III

Mechanical shock

To BS EN 61010:2001

Electrical environments

- EMC: BS EN61326-1:1998 + A2:2001
- Electrical Safety: BS EN 61010:2001
- Mechanical Safety Pressure Equipment Directive—Class: Sound Engineering Practice (SEP)

Options

A) DPI 104 external power supply unit with lead p/n 191-350

B) PC serial lead for connection to PC p/n IA4090-2-V0.
(Note: Option A is recommended with PC serial lead.)

E) Mating plug for eight-pin socket for switch test, voltage output, external power and alarm function (customers wishing to make their own connections/leads) p/n 1S-04-0027

F) 9/16 x 18 UNF to 3/8 BSP adapter for connection to PV 212 p/n 182-190

G) DPI 104 UPM power lead for use with UPM IDOS Sensor p/n IA4101-1-V0. Requires Option H.

H) Universal 12V external power supply for use with the UPM IDOS remote sensor p/n 191-129

Ordering information

Please state the following (where applicable)

1. Model DPI 104
2. Pressure range, type (G, A or SG) and pressure connections required.
3. Options, if required. Please order as separate items.

Pneumatic and hydraulic test kits

The DPI 104 is included as a standard component in these test and calibration kits:

Low pressure pneumatic test kit

Includes: DPI 104; ranges to 30 psi (2 bar), PV 210 low pressure pneumatic test pump, hose, adapters, seal kit and case.

Pneumatic test kit

Includes: DPI 104; ranges to 300 psi (20 bar), PV 211 pneumatic test pump, hose, adapters, seal kit and case.

Hydraulic test kit

Includes: DPI 104; ranges to 15,000 psi (1000 bar), PV 212 hydraulic test pump, hose, adapters, seal kit and case.

Pneumatic and hydraulic test kit

Includes: DPI 104; ranges to 10,000 psi (700 bar), PV 411A combined pneumatic and hydraulic test pump, hydraulic reservoir, hose, adapters seal kit and case.



Low pressure pneumatic test kit



Pneumatic test kit



Hydraulic test kit



Pneumatic and hydraulic test kit

Pressure range chart

Code	Pressure rating	Pump options
04	10 psi (700 mbar)	PV210
07	30 psi (2 bar)	PV210
10	100 psi (7bar)	PV211, PV411A
13	300 psi (20 bar)	PV211, PV411A
16	1000 psi (70 bar)	PV212, PV411A
18	3000 psi (200 bar)	PV212, PV411A
20	5000 psi (350 bar)	PV211, PV411A
22	10,000 psi (700 bar)	PV212, PV411A
23	15,000 psi (1000 bar)	PV212

Test kit ordering information

Pump model
PV210
PV211
PV212
PV411A

Code
104 gauge

Code mode
P Pneumatic
H Hydraulic
HP Hydraulic/Pneumatic

Code fittings
BSP
NPT

Code pressure range
X see pressure range chart

Code type
G Gauge
A Absolute
SG sealed gauge

PV211 **-104** **-P** **-2** **-13** **G**
(Typical model number)

Copyright 2021 Baker Hughes Company. All rights reserved.

920-176E
BHCS38698 (03/2021)

Baker Hughes

druck.com