- **±0.25% Test Gauge Accuracy**
- **316L Stainless Steel Wetted Parts**
- **Pressure, Vacuum, or Compound Ranges**
- **Ruggedized Design, Simple Operation**

Specifications

Ranges and Resolution
See table below. Contact factory for special engineering units.
Resolution is fixed and limited by number of display digits.
20, 200, and 2000 ranges indicate 19.99, 199.9, and 1999

Accuracy
Includes linearity, hysteresis, repeatability
Standard: ±0.25% of full scale ±1 least significant digit
-HA option: ±0.1% FS ±1 LSD, available with most ranges

Display
3 readings per second nominal display update rate
Ranges to 2000: 3.5 digit (1999) LCD, 0.5" H digits
Ranges >2000: 4 digit LCD, 0.5" H digits,
5 character 0.25" H alphanumeric lower display
BL models: Red LED display backlight

Batteries, Low Battery Indication, Battery Life
Two AA alkaline included
Low battery indication on display (battery life is approximate)
B ranges to 2000: 2500 hours
B ranges >2000: 2000 hours
BBL ranges to 2000: 180 hours
BBL ranges >2000: 150 to 1500 hours

Controls
B ranges to 2000: Front button turns gauge on/off, starts auto shutoff timer

BL ranges to 2000: Front button turns gauge and backlight on/off, starts shutoff timer (backlight is on whenever gauge is on)

B ranges >2000: Front button turns gauge on/off, starts auto shutoff timer, zeros display (gauge reference only)

BL ranges >2000: Front button turns gauge on/off, starts auto shutoff timer, activates backlighting for one minute, and zeros display with gauge reference ranges

Auto Shutoff
Factory set to 5, 10, 30 minutes, or on/off
Ranges >2000 can be factory set to custom minutes or hours

Calibration
Ranges to 2000: Front calibration potentiometers, non-interactive zero and span, ±10% range

Ranges >2000: Internal calibration buttons, non-interactive zero, span, and linearity, ±10% of range

Housing Material
DPG1000B: Extruded aluminum case, epoxy powder coated, ABS/polycarbonate bezel (aluminum bezel optional), front and rear gaskets, polycarbonate label

F4B: UV stabilized ABS/polycarbonate NEMA 4X case, clear polycarbonate display window, polycarbonate front label, rear gasket, six captive stainless steel cover screws

Weight
Approximately 9 ounces, shipping weight 1 pound

Connection and Material
1/4" NPT male fitting, 316L stainless steel
All wetted parts are 316L stainless steel

Overpressure and Burst
3000 psig sensor range: 5000 psig
5000 psig sensor range: 7500 psig
All others: 2 X pressure range
3000 psi, 5000 psi, 4 digit ranges: 112.5% FS out-of-range display: I – – – or I –.–.–
4 X sensor burst pressure rating, or 10,000 psi, whichever is less
Vacuum: all 15 psi, 30 psia, all 100 psi, all 200 psi sensors

Environmental Temperatures
Storage temperature: −40 to 203°F (−40 to 95°C)
Operating (3.5 digit versions): −40 to 185°F (−40 to 85°C)
Operating (4 digit versions): −4 to 185°F (−20 to 85°C)
Compensated range: 32 to 158°F (0 to 70°C)

How to Order

Model	Features
DPG1000B *range – shutoff time – options*	Std. housing
DPG1000BBL *range – shutoff time – options*	Std. housing, backlit display
F4B *range – shutoff time – options*	NEMA 4X
F4BBL *range – shutoff time – options*	NEMA 4X, backlit display

Range Code
See table below. Specify pressure or vacuum (**VAC**) range and units. Include gauge (**G**) or absolute (**A**) reference as applicable. Ranges listed as 20, 200, or 2000 display 19.99, 199.9, or 1999. See "F" series gauges for 4 digit ranges with extra resolution. If vacuum gauge requires a minus sign, please specify.

Shutoff Time
-5, **-10**, **-30** (minutes), **-ON** for on/off only
Custom shutoff times available for 4 digit ranges

Options (add to end of model number)
-HA High accuracy, ±0.1% FS ±1 LSD. Not available with vacuum, compound, bipolar, absolute, or 3 psi sensor.

-CC Circuit board conformal coating for moisture resistance.

-CS Case stiffener reinforces case bottom. DPG1000 only.

-MC Machined aluminum bezel, epoxy coated. Improves durability and chemical resistance. DPG1000 only.

-PM Panel mount, 4.1" x 4.1". DPG1000 only.

-SM Surface mount plate. Battery gauges only. DPG1000 only.

-TP Top port, gauge port on top of case. DPG1000 only.

Accessories (add to end of model number or order separately)
RB Protective rubber boot. DPG1000 only.
CD Calibration data, 5 test points, test date.
NC NIST traceable certificate, 5 test points and date.

Made in USA

DPG1000B

DPG1000B 4 Digit Ranges

RB Rubber Boot

F4B, NEMA 4X

Quick Link
cecomp.com/bat

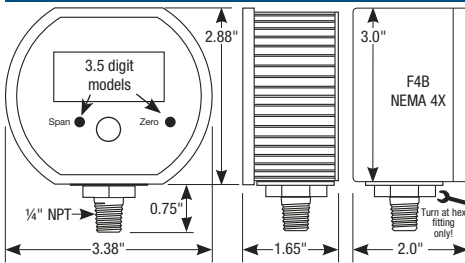F4B 4 Digit Ranges, NEMA 4X

Examples
DPG1000B100PSIG-5-HA: 100.0 psig, 5 min. shutoff, high accuracy
F4BBL−100V700KPAG-ON: NEMA 4X, backlit display, −100 to 700 kPa, on/off via front button

Range Order Codes * 4 Digit Ranges

PSI	Res	inH2O	Res	oz/in²	Res	g/cm²	Res	mmHg	Res	Torr	Res	mbar	Res	cmH2O	Res	mmH2O	Res
3PSIG	.01	85INH2OG	.1	50ZING	.1	200GCMG	.1	150MMHGG	.1			200MBARG	.1	200CMH2OG	.1	2000MMH2OG	1
5PSIG	.01	140INH2OG	.1	80ZING	.1	350GCMG	1	260MMHGG	1			350MBARG	1	350CMH2OG	1	3500MMH2OG*	1
15PSIA	.01	400INH2OA	1	240ZINA	1	1000GCMA	1	760MMHGA	1	760TORRA	1	1000MBARA	1	1000CMH2OA	1		
15PSIVAC	.01	400INH2OVAC	1	240ZINVAC	1	1000GCMVAC	1	760MMHGVAC	1	760TORRVAC	1	1000MBARVAC	1	1000CMH2OVAC	1		
±15PSIG	.1	±400INH2OG	1	±240ZING	1	±1000GCMG	1	±760MMHGG	1			±1000MBARG	1	±1000CMH2OG	1		
15PSIG	.01	400INH2OG	1	240ZING	1	1000GCMG	1	760MMHGG	1			1000MBARG	1	1000CMH2OG	1		
30PSIA	.1	850INH2OA	1	480ZINA	1	2100GCMA*	1	1600MMHGA	1	1600TORRA	1	2000MBARA	1	2100CMH2OA*	1		
30PSIG	.1	850INH2OG	1	480ZING	1	2100GCMG*	1	1600MMHGG	1			2000MBARG	1	2100CMH2OG*	1		

PSI	Res	InHg/PSI	Res	inHg	Res	ftH2O	Res	kPa	Res	MPa	Res	bar	Res	kg/cm²	Res	atm	Res
3PSIG	.01			6INHGG	.01	7FTH2O	.01	20KPAG	.01								
5PSIG	.01			10INHGG	.01	12FTH2O	.01	35KPAG	.1								
15PSIA	.01			30INHGA	.1			100KPAA	.1			1BARA	.001	1KGCMA	.001	1ATMA	.001
15PSIVAC	.01			30INHGVAC	.1			100KPAVAC	.1			1BARVAC	.001	1KGCMVAC	.001	1ATMVAC	.001
±15PSIG	.1	−30V15PSIG	.1	±30INHGG	.1			±100KPAG	.1			±1BARG	.001	±1KGCMG	.001	±1ATMG	.001
15PSIG	.01			30INHGG	.1	35FTH2O	.1	100KPAG	.1			1BARG	.001	1KGCMG	.001	1ATMG	.001
30PSIA	.1			60INHGA	.1			200KPAA	.1			2BARA	.001	2KGCMA	.001	2ATMA	.001
30PSIG	.1			60INHGG	.1	70FTH2O	.1	200KPAG	.1			2BARG	.001	2KGCMG	.001	2ATMG	.001
60PSIG	.1			120INHGG	.1	140FTH2O	.1	400KPAG	1			4BARG	.01	4KGCMG	.01	4ATMG	.01
100PSIA	.1			200INHGA	.1			700KPAA	1			7BARA	.01	7KGCMA	.01	7ATMA	.01
100PSIG	.1			200INHGG	.1	230FTH2O	1	700KPAG	1			7BARG	.01	7KGCMG	.01	7ATMG	.01
−15V100PSIG	.1	−30V100PSIG	.1	−30V200INHGG	.1			−100V700KPAG	1			−1V7BARG	.01	−1V7KGCMG	.01	−1V7ATMG	.01
200PSIG	.1			400INHGG	1	480FTH2O	1	1400KPAG	1	1.4MPAG	.001	14BARG	.01	14KGCMG	.01	14ATMG	.01
−15V200PSIG	.1	−30V200PSIG	.1	−30V400INHGG	1			−100V1400KPAG	1	−0.1V1.4MPAG	.001	−1V14BARG	.01	−1V14KGCMG	.01	−1V14ATMG	.01
300PSIG	1			600INHGG	1	700FTH2O	1	2000KPAG	1	2MPAG	.001	20BARG	.01	20KGCMG	.01	20ATMG	.01
500PSIG	1			1000INHGG	1	1150FTH2O	1	3500KPAG*	1	3.5MPAG	.01	35BARG	.1	35KGCMG	.1	34ATMG	.1
1000PSIG	1			2000INHGG	1	2300FTH2O*	1	7000KPAG*	1	7MPAG	.01	70BARG	.1	70KGCMG	.1	70ATMG	.1
3000PSIG*	1					6900FTH2O*	1			20MPAG	.01	200BARG	1	200KGCMG	.1	200ATMG	.1
5000PSIG*	1							35MPAG	.1			350BARG	1	350KGCMG	1	340ATMG	1

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Dimensions

3.5 digit models use plastic caps on potentiometers, F4 models use nylon screws with o-rings. 4 digit models use internal buttons.

Types of Gauges

Gauge reference types read zero with the gauge port open.

Bipolar ranges read positive pressure and vacuum in the same units, and zero with the gauge port open.

1000 psi and higher sensor are a sealed reference type. They read zero with the gauge port open are internally referenced to 14.7 psi. Functionally similar to gauge reference sensors.

Absolute reference gauges read zero at full vacuum and atmospheric pressure with the gauge port open. With an open gauge port the readings will vary continuously due to the effects of barometric pressure.

Precautions

✔ Read these instructions before installing the gauge. Configuration may be easier before the gauge is installed. Contact the factory if you have any questions.

✔ These products do not contain user-serviceable parts except for batteries. Contact us for repairs, service, or refurbishment.

✔ Gauges must be operated within specified ambient temperature ranges.

✔ Outdoor or wash down applications require a NEMA 4X gauge or installation in a NEMA 4X housing.

✔ Use a pressure or vacuum range appropriate for the application.

✔ Use fittings appropriate for the pressure range of the gauge.

✔ Due to the hardness of 316 stainless steel, it is recommended that a thread sealant be used to ensure leak-free operation.

✔ For contaminated media use an appropriate screen or filter to keep debris out of gauge port.

✔ Remove system pressures before removing or installing gauge.

✔ Install or remove gauge using a wrench on the hex fitting only. Do not attempt to turn gauge by forcing the housing.

✖ Avoid permanent sensor damage! Do not apply vacuum to gauges not designed for vacuum operation.

✖ Avoid permanent sensor damage! NEVER insert objects into gauge port or blow out with compressed air.

⚠ Gauges are not for oxygen service. Accidental rupture of sensor diaphragm may cause silicone oil inside sensor to react with oxygen.

⚠ Hazardous locations as defined by the National Electrical Code (NEC—see nfpa.org) require the use of Instrisicaly Safe gauges. See cecomp.com or consult factory for assistance.

Battery Replacement

A low battery indication (either LOBAT or a symbol depending on the model) will be shown in the upper left corner of the display when the battery voltage falls sufficiently. The battery should be replaced soon after the indicator comes to prevent unreliable readings.

WARNING: Batteries must be changed in a non-hazardous location only. Do not mix different batteries or fresh batteries with old. Replace both batteries with new ones at the same time.

1. Remove the 6 Phillips screws on the back of the gauge.
2. Remove battery retainer clip.
3. Remove batteries by lifting up the positive end of the battery (opposite the spring) taking care not to bend the spring.
4. Discard old batteries properly. See battery manufacturer's recommendations for disposal or recycling.
5. Install batteries with correct orientation. Insert the negative (flat) end of each battery first towards the battery holder spring.
6. Replace the clip and back cover, including the rubber gasket.

Operation, 3.5 Digit Models

Press the button on the front of the gauge to activate the display.

The gauge can be shut off at any time by pressing the button again.

The gauge will stay on for a period of time determined by the auto shutoff time. If the gauge was ordered without auto shutoff (-ON) it will stay on until the button is pressed or until the batteries are depleted.

Display backlighting for BL models is on whenever the gauge is on. The backlighting will not be apparent under bright lighting conditions.

Turn gauge off when not in use to conserve batteries.

Operation, 4 Digit Models

Press and hold the front button for approximately 1 second.

The full-scale range is indicated, the display is tested, and the reading and units are displayed.

The gauge may be zeroed at power-up by following the procedure below. Absolute reference gauges do not use the zero feature since they normally read atmospheric pressure.

Make sure the gauge port is exposed to normal atmospheric pressure with no pressure applied. The zero function is only used at power-up and the stored zero correction is erased when the gauge is shut off.

Press and hold the front button.

The full-scale range is indicated and the display is tested.

Continue to press the button until *oooo* is displayed and then release the button.

The gauge is now zeroed and ready for use with the actual pressure is displayed.

Attempting to zero the gauge with pressure greater than approximately 3% of full-scale applied will result in an error condition, and the display will alternately indicate *Err0* and the actual measured pressure. The gauge must be powered down to reset the error condition.

Following the start-up initialization, the display indicates the pressure reading updated approximately 3 times per second. The auto shutoff timer starts when the gauge is powered up or whenever the button is pushed, unless the gauge was ordered without an auto shutoff time (-ON option).

If excessive vacuum is applied to a pressure-only gauge, the display will indicate *−Err* until the vacuum is released. Applying vacuum to a gauge designed for pressure may damage the pressure sensor. If excessive pressure is applied (112.5% over range), an out-of-range indication of I − − − or I −.−.−.− will be displayed depending on model.

Display backlighting for BL models can be turned on by momentarily pressing the button whenever the gauge is on. The backlight will turn on for one minute and then automatically shut off. This also restarts the auto shutoff timer. The display backlighting will not be apparent under bright lighting conditions.

To shut off the gauge at any time, press and hold the button until the display indicates *OFF* (about 5 seconds) and then release.

For gauges with auto shutoff, the display indicates *OFF* five seconds prior to auto shutoff. The button can be pressed to keep the gauge on. The auto shutoff and backlight (if equipped) timers are reset whenever the button is pressed and released.

If the gauge was ordered without auto shutoff (-ON option) it will stay on until manually shut off or until the batteries are depleted. Turn gauge off when not in use to conserve battery life.

Calibration Preparation, All Models

All gauges are factory calibrated using NIST traceable calibration equipment. Calibration is not required before using the gauge. Calibration intervals vary depending on your quality standards, but annual recalibration is customary.

Calibration equipment is not required to zero gauge reference ranges. Absolute reference ranges may be zeroed with application of full vacuum.

Span calibration should only be performed using appropriate calibration procedures with calibration standards that are at least four times more accurate than the gauge being calibrated.

The calibration system must be able to generate and measure pressure/vacuum over the full range of the gauge. A vacuum pump able to produce a vacuum of 10 microns (0.01 torr or 10 millitorr) or lower is required for vacuum and absolute gauges.

Install fresh batteries before calibrating battery-powered gauges.

Allow the gauge to equalize to normal room temperature for approximately 20 minutes before calibration.

Calibration, 3.5 Digit Models

Remove the front covers to access the zero and span calibration potentiometers. F4B models use nylon cover screws.

Gauges may be re-zeroed without affecting the span calibration. For gauge reference models the gauge port must be open to the ambient. For absolute reference models full vacuum must be applied. Adjust the zero control until the gauge reads zero with the minus (−) sign occasionally flashing.

Zero calibration must be done before span calibration. Using the appropriate pressure standards, record readings at three to five points over the range of gauge and adjust span control to minimize error and meet specifications.

Calibration, 4 Digit Models

Entering Calibration Mode

Remove the rear cover to gain access to the UP and DOWN buttons located near the lower right and left corners of the circuit board.

DOWN   UP
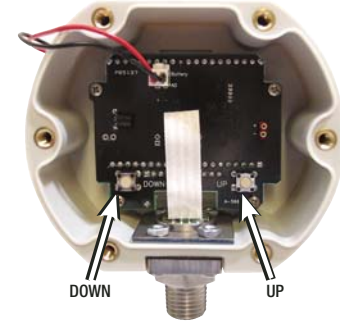
With the gauge off, press and hold the DOWN calibration button, and also press the front button.

The full-scale pressure range and display test is shown, and then CAL is displayed to indicate that the calibration mode is enabled.

Release all buttons. The gauge enters and remains in the calibration mode until restarted manually or power is removed. Features not related to calibration are disabled. If the battery pack is unplugged or the power removed during calibration, settings will not be saved.

The display will indicate the current pressure reading, updating approximately 3 times per second.

Each press of the UP or DOWN button makes a small correction, which may not always be indicated on the display. Press and hold the button for one second or longer to make larger corrections. The gauge's display is adjusted to match the calibrator's reading.

Gauge Reference Ranges (3 Points)

With the gauge port open to atmosphere, the character display will alternate between ZERO and CAL. Press the UP and DOWN buttons to obtain a display indication of zero.

Apply full-scale pressure (or vacuum for vacuum gauges). The character display will alternate between +SPAN and CAL. Press the UP and DOWN buttons to obtain a display indication equal to full-scale pressure.

Apply 50% of full-scale pressure. The character display will alternate between +MID and CAL. Use the UP and DOWN buttons to obtain a display indication equal to 50% of full-scale pressure.

Absolute Reference Ranges (3 Points)

Apply full vacuum to the gauge. The character display will alternate between ZERO and CAL. Press the UP and DOWN buttons to obtain a display indication of zero.

Apply full-scale pressure. The character display will alternate between +SPAN and CAL. Press the UP and DOWN buttons to obtain a display indication equal to full-scale pressure.

Apply 50% of full-scale pressure. The character display will alternate between +MID and CAL. Press the UP and DOWN buttons to obtain a display indication equal to 50% of full-scale pressure.

Bipolar (±) and Compound Ranges (4 or 5 Points)

With the gauge port open to atmosphere, the character display will alternate between ZERO and CAL. Press the UP and DOWN buttons to obtain a display indication of zero.

Apply full-scale positive pressure. The character display will alternate between +SPAN and CAL. Press the UP and DOWN buttons to obtain a display indication equal to full-scale pressure.

Apply 50% of full-scale positive pressure. The character display will alternate between +MID and CAL. Press the UP and DOWN buttons to obtain a display indication equal to 50% of full-scale pressure.

Apply full vacuum. The character display will alternate between −SPAN and CAL. Press the UP and DOWN buttons to obtain a display indication equal to the full vacuum reading.

Gauges using a ±15 psig sensor have a −MID calibration point. Apply 50% of the full-scale vacuum range (for example, −7.4 psi for a ±15 psi gauge). The character display will alternate between −MID and CAL. Press the UP and DOWN buttons to obtain a display indication equal to 50% of full-scale vacuum.

Exit Calibration Mode and Verify Calibration

Exit the calibration mode and save the calibration data by pressing and holding the front button until the display indicates OFF.

Verify readings at 0%, 25%, 50%, 75%, and 100% of full scale.

Replace the rear cover and screws, taking care not to pinch the battery leads between the case and the rear cover.