

Ranges and Resolution

Use range codes below to build model number. Engineering units and resolution are factory set. 20, 200, 2000 ranges display 19.99, 199.9, 1999 respectively. See **CTP, F16B, F20B** for higher ranges, resolution, accuracy.

PSI	Res	inH2O	Res	bar	Res
3PSIG	0.01	85INH2OG	0.1	1BARA	0.001
5PSIG	0.01	140INH2OG	0.1	1BARVAC	0.001
15PSIA	0.01	400INH2OA	1	±1BARG	0.001
15PSIVAC	0.01	400INH2OVAC	1	1BARG	0.001
±15PSIG	0.1	±400INH2OG	1	2BARA	0.001
15PSIG	0.01	400INH2OG	1	2BARG	0.001
30PSIA	0.1	850INH2OA	1	4BARG	0.01
30PSIVAC	0.1	850INH2OVAC	1	7BARA	0.01
60PSIG	0.1	1700INH2OG	1	7BARG	0.01
100PSIA	0.1	ftH2O	Res	-1V7BARG	0.01
-15V100PSIG	0.1	7FTH2O	0.01	14BARG	0.01
100PSIG	0.1	12FTH2O	0.01	-1V14BARG	0.01
-15V200PSIG	0.1	35FTH2O	0.1	20BARG	0.01
200PSIG	0.1	70FTH2O	0.1	35BARG	0.1
300PSIG	1	140FTH2O	0.1	70BARG	0.1
500PSIG	1	200FTH2O	0.1	140BARG	0.1
1000PSIG	1	230FTH2O	1	200BARG	0.1
2000PSIG	1	460FTH2O	1	350BARG	1
oz/in2	Res	700FTH2O	1	g/cm2	Res
48ZING	0.1	1150FTH2O	1	200GCMG	0.1
50ZING	0.1	mmH2O	Res	350GCMG	1
80ZING	0.1	2000MMH2OG	1	1000GCMG	1
240ZINA	1	cmH2O	Res	1000GCMVAC	1
235ZINVAC	1	200CMH2OG	0.1	±1000GCMG	1
±240ZING	1	350CMH2OG	1	1000GCMG	1
240ZING	1	1000CMH2OA	1	2000GCMG	1
480ZINA	1	1000CMH2OVAC	1	2000GCMG	1
480ZING	1	±1000CMH2OG	1	kg/cm2	Res
960ZING	1	1000CMH2OG	1	1KGCMG	0.001
-235V1600ZING	1	2000CMH2OA	1	1KGCMVAC	0.001
1600ZING	1	2000CMH2OG	1	±1KGCMG	0.001
inHg/PSI	Res	kPa	Res	1KGCMG	0.001
-30V15PSIG	0.1	20KPAG	0.01	2KGCMG	0.001
-30V100PSIG	0.1	35KPAG	0.1	2KGCMG	0.001
-30V200PSIG	0.1	100KPAA	0.1	4KGCMG	0.01
inHg	Res	100KPAVAC	0.1	7KGCMG	0.01
6INHGG	0.01	±100KPAG	0.1	7KGCMG	0.01
10INHGG	0.01	100KPAG	0.1	-1V7KGCMG	0.01
30INHGA	0.1	200KPAA	0.1	14KGCMG	0.01
30INHGVAC	0.1	200KPAG	0.1	-1V14KGCMG	0.01
±30INHGG	0.1	400KPAG	1	20KGCMG	0.01
30INHGG	0.1	700KPAA	1	35KGCMG	0.1
60INHGA	0.1	-100V700KPAG	1	70KGCMG	0.1
60INHGG	0.1	700KPAG	1	140KGCMG	0.1
120INHGG	0.1	-100V1400KPAG	1	200KGCMG	0.1
200INHGA	0.1	1400KPAG	1	350KGCMG	1
-30V200INHGG	0.1	2000KPAG	1	atm	Res
200INHGG	0.1	MPa	Res	1ATMA	0.001
-30V400INHGG	1	1.4MPAGVAC	0.001	1ATMVAC	0.001
400INHGG	1	-0.1V1.4MPAG	0.001	±1ATMG	0.001
600INHGG	1	1.4MPAG	0.001	1ATMG	0.001
1000INHGG	1	2MPAG	0.001	2ATMA	0.001
2000INHGG	1	3.5MPAG	0.01	2ATMG	0.001
Torr	Res	7MPAG	0.01	4ATMG	0.01
760TORRA	1	14MPAG	0.01	7ATMA	0.01
760TORRVAC	1	20MPAG	0.01	-1V7ATMG	0.01
1600TORRA	1	35MPAG	0.1	7ATMG	0.01
mmHg	Res	mbar	Res	-1V14ATMG	0.01
150MMHGG	0.1	200MBARG	0.1	14ATMG	0.01
260MMHGG	1	350MBARG	1	20ATMG	0.01
760MMHGA	1	1000MBARA	1	34ATMG	0.1
760MMHGVAC	1	1000MBARVAC	1	70ATMG	0.1
±760MMHGG	1	±1000MBARG	1	136ATMG	0.1
760MMHGG	1	1000MBARG	1	140ATMG	1.1
1600MMHGA	1	2000MBARA	1	200ATMG	0.1
1600MMHGG	1	2000MBARG	1	340ATMG	1

Accuracy

Accuracy includes linearity, hysteresis, repeatability
Accuracy: ±0.25% of full scale ±1 least significant digit
Sensor hysteresis: ±0.015% FS, included in accuracy
Sensor repeatability: ±0.01% FS, included in accuracy

Display

3 readings per second nominal display update rate
3-1/2 digit (1999) LCD, 0.5" H digits
BL option: LED backlight on whenever gauge is on

Controls

Front button turns gauge on/off

Batteries, Low Battery Indication, Battery Life

Two AA alkaline included
Low battery indication on display (battery life is approximate)
B: 2500 hours
BL option: 180 hours

Controls

B: Front button turns gauge on/off, starts auto shutoff timer
BL option: Front button turns gauge on/off, starts auto shutoff timer, backlight is on when gauge is on

Auto Shutoff

Factory set to 5, 10, 30 minutes, or -ON for on/off only

Calibration

Front calibration potentiometers, non-interactive zero and span, ±10% range

Housing

DPG1000B: NEMA 2 gray coated extruded aluminum case, ABS/polycarbonate bezel, front and rear gaskets, polycarbonate label.
F4B: NEMA 4X UV stabilized ABS/polycarbonate case, polycarbonate display window, polycarbonate front label, rear gasket, six stainless steel cover screws. Not intended for permanent outdoor installations.

Weight

Approximately 9.5 ounces
Shipping weight 1 pound

Connection and Material

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

Overpressure, Burst, Vacuum

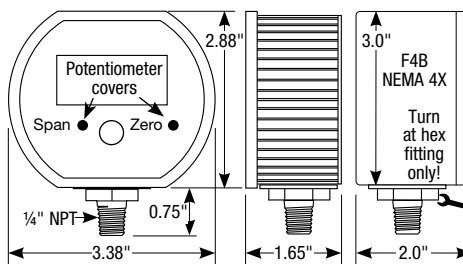
Ranges using 3000 psig sensor: 5000 psig
Ranges using 5000 psig sensor: 7500 psig
All others: 2 X pressure range

Sensor burst: 4 X sensor pressure rating, or 10,000 psi, whichever is less

Vacuum service: 15 psia, ±15 psig, 15 psig, 30 psia, 100 psig, 100 psia, 200 psig sensors

Environmental Temperatures

Storage temperature: -40 to 203°F (-40 to 95°C)
Operating: -4 to 180°F (-20 to 82°C)
Sensor compensated range: 32 to 158°F (0 to 70°C)



DPG1000 models use plastic caps on potentiometers, F4 potentiometer covers are nylon screws with o-rings.

Examples

DPG1000B100PSIG-5: 100.0 psig, 5 minute shut off
F4BBL-100V700KPAG-ON: NEMA 4X, backlit display, -100 to 700 kPa, on/off

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



How to Specify	Type
DPG1000B range - time - options	Standard housing
DPG1000BBL range - time - options	Standard housing, backlit display
F4B range - time - options	NEMA 4X housing
F4BBL range - time - options	NEMA 4X housing, backlit display

Range Codes: See table at left

psi = PSI Torr = TORR mbar = MBAR
inHg = INHG mmH2O = MMH2O bar = BAR
oz/in² = ZIN kg/cm² = KGCM cmH2O = CMH2O
inH2O = INH2O g/cm² = GCM atm = ATM
ftH2O = FTH2O kPa = KPA
mmHg = MMHG MPa = MPA

G = gauge reference pressure
VAC = gauge reference vacuum
A = absolute reference

If vacuum gauge requires a minus sign, please specify. Range codes listed as 2, 20, 200, or 2000 display 1.999, 19.99, 199.9, or 1999 respectively.

Time:	Auto shutoff time (factory configured)
-5	5 minutes. Default if not specified.
-10	10 minutes
-30	30 minutes
-ON	No auto shutoff. On/off via front button.
Options:	Add to end of model number. Factory installed. See cecomp.com/accessories for details.
-PM	Panel mount, 4.1" x 4.1", n/a NEMA 4X
-FP	Sealed housing and CC for high humidity food processing applications. NEMA 4X absolute reference ranges only.
-MC	Metal front cover instead of plastic, n/a NEMA 4X
-CS	Case bottom stiffener plate, n/a NEMA 4X
-CC	Moisture resistant circuit board conformal coating
-TP	Top port, gauge port on top of case, n/a NEMA 4X
-SM	Surface mount plate, n/a NEMA 4X

Calibration Certificate: Add to end of model number
-NC NIST traceability documentation, 5 points and date

TP
Top gauge port. For tire pressure applications. Not available with NEMA 4X models.

Accessories: Order separately

RB or RRB Protective Boot
High visibility orange or red rubber boot protects gauge for portable applications. Not available with NEMA 4X models.

SCR14SS Filter Screen

1/4 NPTM x 1/4 NPTF filter screen fitting keeps debris out of gauge sensor. 303SS body, 100 micron 304SS screen.

CON14SS Quick Connector

Quick connector to install or remove gauge without tools. 304 stainless steel, urethane seal.



Precautions

- ✓ Read and understand all instruction sheet information. Contact us for help, instructions, or repairs.
- ✓ **Use specified power only.** Improper voltages will damage the gauge. NEVER connect the gauge power wires directly to an electrical outlet or permanent damage will result.
- ✓ Gauges are not intended for permanent outdoor use. Protect from weather and excessive humidity. NEMA 4X models are available for temporary outdoor use and wash down areas.
- ✓ Install gauge so it is protected from impact damage.
- ✓ Media temperature and gauge ambient temperature must be within specified ranges.
- ✓ Use a screen or filter to avoid clogging gauge port when measuring contaminated media.
- ✓ Use thread sealant to ensure leak-free operation.
- ✓ Media being measured must be compatible with 316L SS.
- ✓ Avoid sensor damage! Sensor diaphragm is thin 316L SS foil. Never insert objects into the gauge port or blow out with compressed air.
- ✓ Avoid sensor damage! Hydraulic or liquid pumping systems must include a shock suppressor to protect gauge sensor from damaging pressure spikes or water hammer.
- ✓ Avoid sensor damage! Do not apply vacuum to non-vacuum gauges or hydraulic vacuum to any gauge.
- △ Do not exceed pressure range indicated on gauge label.
- △ Remove system pressure before removing or installing gauge.
- △ Use fittings appropriate for the pressure range of the gauge.
- △ Gauges are not for oxygen service. Accidental rupture of sensor diaphragm may cause silicone oil inside sensor to react with oxygen.
- △ Only gauges marked as Intrinsically Safe can be used in hazardous locations or in the presence of flammable or explosive substances, or atmospheres.

We maintain a constant effort to upgrade and improve products. Specifications are subject to change without notice. Contact us for latest product information.

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.

Compound ranges read inHg for vacuum, psig for positive pressure, and zero with the gauge port open.

500 psi and higher sensors are a sealed reference type. They are internally referenced to 14.7 psi and are functionally similar to gauge reference models.

Absolute reference gauges read zero at full vacuum and atmospheric pressure with the gauge port open. The open port readings will vary due to fluctuating barometric pressure. They will not display the same reading as a weather barometer. Weather barometers are referenced to sea level for consistent weather reports at various altitudes.

Operation

Press the front button to activate the display.

The gauge can be shut off 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. Backlighting may not be apparent under bright lighting conditions.

Turn gauge off when not in use to conserve batteries.

Battery Replacement

A LOBAT indication will be shown in the upper left corner of the display when battery voltage falls sufficiently. Replace batteries soon after the indicator comes to prevent unreliable readings.

1. Remove the 6 Phillips screws on the rear cover.
2. Remove battery holder if necessary.
3. Replace both batteries with new ones at the same time. 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.
5. Install batteries with correct orientation. Insert the negative (flat) end of each battery first towards the battery holder spring.
6. Replace the battery holder if it was taken out.
7. Make sure the rubber gasket is in place on the rear cover.
8. Reinstall the 6 Phillips screws.



Calibration Preparation

Gauges are factory calibrated at approximately 23°C using NIST traceable calibration equipment. Calibration is not required before using the gauge.

Calibration intervals depend on your quality standards, but annual recalibration is customary. Calibration should be performed by qualified individuals using appropriate calibration standards and procedures.

Gauges can be returned to the factory for recalibration and repairs. NIST traceability is available.

The calibration equipment should be at least four times more accurate than the gauge being calibrated and be able to generate and measure pressure and/or vacuum over the full range of the gauge.

A vacuum pump able to produce a vacuum of 100 microns (0.1 torr or 100 millitorr) or lower is required for vacuum and absolute gauges.

Warning: Never apply vacuum to gauge not designated for vacuum service. Permanent sensor damage may result.

Install fresh batteries.

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

For an as-found report, record readings at three to five points over the range of gauge.

For DPG100B models remove the black front potentiometer covers to access the zero and span calibration potentiometers.

F4B models use white nylon screws with an o-ring to protect the potentiometers. These must be removed first to access the zero and span calibration potentiometers.

Calibration: Gauge Reference Pressure Ranges

1. See the rear label of gauge for the range.
2. **Zero:** Zero calibration must be done before span calibration. If desired, gauge can be zeroed without doing span calibration.
With the gauge port open to atmosphere, adjust the Zero potentiometer for a display indication of zero with the minus (-) sign occasionally flashing.
3. **Span:** A setting that is 75% of full scale pressure works well to minimize mid-range non-linearity. Adjust the Span potentiometer to match the gauge's display to your calibrator's reading.
4. Verify pressure indications at 0%, 25%, 50%, 75%, and 100% of full scale and repeat calibration as needed to achieve best accuracy over desired operating range.
5. Replace the potentiometer covers.

Calibration: Gauge Reference Vacuum Ranges

1. See the rear label of gauge for the range.
2. **Zero:** Zero calibration must be done before span calibration. If desired, gauge can be zeroed without doing span calibration.
With the gauge port open to atmosphere, adjust the Zero potentiometer for a display indication of zero with the minus (-) sign occasionally flashing.
3. **Span:** A setting that is 75% of full scale vacuum works well to minimize mid-range non-linearity. Adjust the Span potentiometer to match the gauge's display to your calibrator's reading.
4. Verify pressure indications at 0%, 25%, 50%, 75%, and 100% of full scale and repeat calibration as needed to achieve best accuracy over desired operating range.
5. Replace the potentiometer covers.

Calibration: Absolute Ranges

1. See the rear label of gauge for the range.
2. **Zero:** Zero calibration must be done before span calibration. If desired, gauge can be zeroed without doing span calibration.
Apply full vacuum to the gauge. Adjust the Zero potentiometer to match the gauge's display to your calibrator's absolute vacuum reading. It may be zero or close to it depending on the ability of the vacuum pump.
3. **Span:** A setting that is 75% of full scale pressure works well to minimize mid-range non-linearity. Adjust the Span potentiometer to match the gauge's display to your calibrator's reading.
4. Verify pressure indications at 0%, 25%, 50%, 75%, and 100% of full scale and repeat calibration as needed to achieve best accuracy over desired operating range.
5. Replace the potentiometer covers.

Calibration: Models Using the ±15 PSIG Sensor

1. See the rear label of gauge for the range.
2. **Zero:** Zero calibration must be done before span calibration. If desired, gauge can be zeroed without doing span calibration.
With the gauge port open to atmosphere, adjust the Zero potentiometer for a display indication of zero with the minus (-) sign occasionally flashing.
3. **Span:** Span calibration for the ±15 psig bipolar sensor can be an iterative process since there one span potentiometer is used

for both positive and negative pressures. Note that full vacuum at sea level is -14.7 psi.

Apply approximately 75% full-scale positive pressure (11 psig or the equivalent engineering unit) and adjust the span pot to get an accurate display.

Then apply the corresponding negative pressure (-11 psig or the equivalent engineering unit).

The display should match the applied negative pressure. If it does not, adjust the span pot to get an indication that is about half the difference between the initial indication and the applied pressure.

Verify the accuracy of the indications at full vacuum, 50% negative pressure, zero, 50% positive pressure, and full-scale pressure.

If necessary, repeat the application of negative and positive pressures making slight adjustments to the span pot until all test points are within tolerance.

4. Replace the potentiometer covers.

Calibration: Models Using the -15V/100PSIG or -15V/200PSIG Sensor

1. See the rear label of gauge for the range.

2. Zero: Zero calibration must be done before span calibration. If desired, gauge can be zeroed without doing span calibration.

With the gauge port open to atmosphere, adjust the Zero potentiometer for a display indication of zero with the minus (-) sign occasionally flashing.

3. Span: Span calibration can be an iterative process since there one span potentiometer is used for both positive and negative pressures. Note that full vacuum at sea level is -14.7 psi.

Apply approximately 75% full-scale positive pressure and adjust the span pot to get an accurate display.

Then apply full vacuum. The display should match the applied negative pressure. If it does not, adjust the span pot to get an indication that is about half the difference between the initial indication and the applied pressure.

If necessary, repeat the application of negative and positive pressures making slight adjustments to the span pot until all test points are within tolerance.

Verify the accuracy of the indications at full vacuum, 50% negative pressure, zero, 50% positive pressure and full-scale pressure.

4. Replace the potentiometer covers.

Calibration: -30inHG/15PSIG, -30inHG/100PSIG, and -30inHG/200PSIG Models

1. See the rear label of gauge for the range.

2. Zero: Zero calibration must be done before span calibration. If desired, gauge can be zeroed without doing span calibration.

With the gauge port open to atmosphere, adjust the Zero potentiometer for a display indication of zero with the minus (-) sign occasionally flashing.

3. Span: Apply approximately 75% full-scale positive pressure and adjust the front span pot to get an accurate display.

Verify the accuracy of the indications at full vacuum, 50% vacuum, zero, 50% positive pressure, and full-scale pressure.

If the positive pressure indications are within tolerance but the vacuum indications are not, remove the rear cover to access the trimmer pot.

Compound range models have a rear internal single-turn trimmer pot that affects only the negative pressure indication.

Its intended function is to provide the accurate conversion from psig to inHg for vacuum. Typically, the trimmer pot will not need adjustment after it is set by the factory.

Apply approximately 75% full vacuum and adjust the trimmer pot for an accurate indication.

4. Verify the accuracy of the indications at full vacuum, 50% vacuum, zero, 50% positive pressure, and full-scale pressure, and repeat calibration as needed to achieve best accuracy over desired operating range.
5. Replace the potentiometer covers, and rear cover and screws if removed.

