- ±0.25% Test Gauge Accuracy, ±0.1% Optional
- 316L Stainless Steel Wetted Parts
- Keypad Selectable Units and Auto Shutoff Times
- Store Readings in Memory

FM APPROVED (c US)

MADE IN USA

Quick Link cecomp.com/is

Agency Approval

Factory Mutual Approved Intrinsically Safe for Hazardous Locations USA & Canada
IS Class I, Division 1, Groups A, B, C, D
T3C Ta = −40°C to 82°C; T4 Ta = −40°C to 66°C
CL I Zone 0 AEx/Ex ia IIC
T3 Ta = −40°C to 82°C; T4 Ta = −40°C to 66°C

Ranges and Resolution

See table below. Select range and default engineering unit. Units may be changed to any listed under the same sensor range. Resolution is fixed and limited to available display digits.

Display

3 readings per second nominal display update rate
4 digit LCD, 0.5" H and 5 character 0.25" H alphanumeric
BL: red LED backlight with ambient light sensor

Accuracy

Accuracy includes linearity, hysteresis, repeatability
Standard accuracy: ±0.25% of full scale ±1 least significant digit
HA accuracy option: ±0.1% FS ±1 LSD
Sensor hysteresis: ±0.015% FS, included in accuracy
Sensor repeatability: ±0.01% FS, included in accuracy

Memory

M2: Min/max readings, user configurable

Batteries

Two 1.5 V AAA Panasonic LR03 alkaline cells
B: Approx. 1000 hours
BL: Approx. 150 to 1000 hours depending on backlight usage
Low battery symbol on display when batteries need replacement

Auto Shutoff

Default 5 minutes, or as ordered
User selectable 1 minute to 8 hours or on/off

Controls and Functions

3 button keypad powers gauge on/off, zeros display (gauge reference only), stores readings. Passcode protection for engineering units, auto shutoff time, memory functions, calibration. Internal lockout switch to disable setup and calibration.
BL: Keypress activates backlighting for 1 min. if low light detected. Configurable for 1 min, disabled, or on when gauge is on.

Calibration

Non-interactive zero, span, and linearity, ±10% of range

Weight

9 ounces (approx.), shipping wt. 1 pound (approx.)

Housing Materials and Circuit Board Protection

NEMA 2 epoxy powder coated aluminum case, rear cover, and bezel
Front and rear rubber gaskets, polycarbonate label
Stainless steel stiffener plate to reinforce sensor area
Conformal coating on circuit boards for moisture resistance

Connection and Sensor Material

1/4" NPT male fitting, 316L stainless steel sensor and wetted parts

Overpressure, Burst, Vacuum Service

2 X pressure range for 3 psi to 2000 psi sensors
5000 psig for ranges using 3000 psig sensor
7500 psig for ranges using 5000 psig sensor
Over-range display 112.5% FS: I – – – or I –.–.–.–
Vacuum service: 15 psia, ±15 psig, 15 psig, 30 psia, 100 psia, 100 psig, 200 psia sensors
Under-range display (non-vacuum sensors): –Err
Burst: 4 X sensor pressure rating or 10,000 psi, whichever is less

Environmental Temperatures

Storage temperature: −40 to 203°F (−40 to 95°C)
Operating temperature: −4 to 185°F (−20 to 85°C)
Sensor compensated range: 32 to 158°F (0 to 70°C)

Ranges and Engineering Units

Range codes are rounded off. CPD = inHg/PSIG, −15V = same units for vacuum & pressure

Range	Code	Res
3 psig	3PSIG	.001
	6INHGG	.001
	85INH2OG	.1
	50ZING	.01
	210GCMG	.1
	150MMHGG	.1
	150TORRG	.1
	200MBARG	.1
	200CMH2OG	.1
	2000MMH2OG	1
	7FTH2O	.001
	20KPAG	.01
5 psig	5PSIG	.001
	10INHGG	.01
	140INH2OG	.1
	80ZING	.1
	350GCMG	.1
	260MMHGG	.1
	260TORRG	.1
	350MBARG	.1
	350CMH2OG	.1
	3500MMH2OG	1
	12FTH2O	.01
	35KPAG	.01
15 psia	15PSIA	.01
	30INHGA	.01
	400INH2OA	.1
	240ZINA	.1
	1000GCMA	1
	760MMHGA	.1
	760TORRA	.1
	1000MBARA	1
	1000CMH2OA	1
	100KPAA	.1
	0.1MPAA	.0001
	1BARA	.001
	1KGCMA	.01
	1ATMA	.001
15 psig vac	15PSIVAC	.01
	30INHGVAC	.01
	400INH2OVAC	.1
	240ZINVAC	.1
	1000GCMVAC	1
	760MMHGVAC	.1
	760TORRVAC	.1
	1000MBARVAC	1
	1000CMH2OVAC	1
	100KPAVAC	.1
	0.1MPAVAC	.0001
	1BARVAC	.001
	1KGCMVAC	.001
	1ATMVAC	.001
15 psig	15PSIG	.01
	30INHGG	.01
	400INH2OG	.1
	240ZING	.1
	1000GCMG	1
	760MMHGG	.1
	760TORRG	.1
	1000MBARG	1
	1000CMH2OG	1
	35FTH2O	.01
	100KPAG	.1
	0.1MPAG	.0001
	1BARG	.001
	1KGCMG	.001
	1ATMG	.001
±15 psig	±15PSIVAC	.01
	15PSICPD	.01
	±30INHGVAC	.01
	±400INH2OVAC	.1
	±240ZINVAC	.1
	±1000GCMVAC	1
	±760MMHGVAC	.1
	±760TORRVAC	.1
	±1000MBARVAC	1
	±1000CMH2OVAC	1
	±100KPAVAC	.1
	±0.1MPAVAC	.0001
	±1BARVAC	.001
	±1KGCMVAC	.001
	±1ATMVAC	.001
30 psia	30PSIA	.01
	60INHGA	.01
	850INH2OA	1
	480ZINA	.1
	2100GCMA	1
	1600MMHGA	1
	1600TORRA	1
	2000MBARA	1
	2100CMH2OA	1
	200KPAA	.1
	0.2MPAA	.0001
	2BARA	.001
	2KGCMA	.1
	2ATMA	.001
30 psig	30PSIG	.01
	60INHGG	.01
	850INH2OG	.1
	480ZING	.1
	2100GCMG	1
	1600MMHGG	1
	1600TORRG	1
	2000MBARG	1
	2100CMH2OG	1
	70FTH2O	.01
	200KPAG	.1
	0.2MPAG	.0001
	2BARG	.001
	2KGCMG	.001
	2ATMG	.001
60 psig	60PSIG	.01
	120INHGG	.1
	1660INH2OG	1
	960ZING	.1
	4200GCMG	1
	3100MMHGG	1
	3100TORRG	1
	4100MBARG	1
	4200CMH2OG	1
	140FTH2O	.1
	400KPAG	.1
	0.4MPAG	.0001
	4BARG	.001
	4KGCMG	.001
	4ATMG	.001
100 psia	100PSIA	.1
	200INHGA	.1
	2770INH2OA	1
	1600ZINA	1
	7000GCMA	1
	5200MMHGA	1
	5200TORRA	1
	7000MBARA	1
	7000CMH2OA	1
	700KPAA	.1
	0.7MPAA	.0001
	7BARA	.001
	7KGCMA	.01
	7ATMA	.01
−15V100psig	100PSIVAC	.1
	100PSICPD	.1
	200INHGVAC	.1
	2770INH2OVAC	1
	1600ZINVAC	1
	5200MMHGVAC	1
	5200TORRVAC	1
	700KPAVAC	1
	0.7MPAVAC	.001
	7BARVAC	.01
	7KGCMVAC	.01
	7ATMVAC	.01
100 psig	100PSIG	.1
	200INHGG	.1
	2770INH2OG	1
	1600ZING	1
	7000GCMG	1
	5200MMHGG	1
	5200TORRG	1
	7000MBARG	1
	7000CMH2OG	1
	230FTH2O	.1
	700KPAG	.1
	0.7MPAG	.0001
	7BARG	.001
	7KGCMG	.001
	7ATMG	.001
−15V200psig	200PSIVAC	.1
	200PSICPD	.1
	400INHGVAC	.1
	5500INH2OVAC	1
	3200ZINVAC	1
	1400KPAVAC	1
	1.4MPAVAC	.001
	14BARVAC	.01
	14KGCMVAC	.01
	14ATMVAC	.01
200 psig	200PSIG	.1
	400INHGG	.1
	5500INH2OG	1
	3200ZING	1
	480FTH2O	.1
	1400KPAG	1
	1.4MPAG	.001
	14BARG	.01
	14KGCMG	.01
	14ATMG	.01
300 psig	300PSIG	.1
	610INHGG	.1
	4800ZING	1
	700FTH2O	.1
	2MPAG	.001
	20BARG	.01
	20KGCMG	.01
	20ATMG	.01
500 psig	500PSIG	.1
	1020INHGG	1
	1150FTH2O	1
	3500KPAG	1
	3.5MPAG	.001
	35BARG	.01
	35KGCMG	.01
	35ATMG	.01
1000 psig	1000PSIG	1
	2040INHGG	1
	2300FTH2O	1
	7000KPAG	1
	7MPAG	.001
	70BARG	.01
	70KGCMG	.01
	70ATMG	.01
2000 psig	2000PSIG	1
	4070INHGG	1
	4600FTH2O	1
	14MPAG	.01
	140BARG	.1
	140KGCMG	.1
	140ATMG	.1
3000 psig	3000PSIG	1
	6100INHGG	1
	6900FTH2O	1
	20MPAG	.01
	200BARG	.1
	200KGCMG	.1
	200ATMG	.1
5000 psig	5000PSIG	1
	35MPAG	.01
	350BARG	.1
	350KGCMG	.1
	340ATMG	.1

How to Specify

How to Specify	Type
DPG2000B range - D4-M2 - time - options	Min/max memory
DPG2000BBL range - D4-M2 - time - options	Min/max memory, backlit display

Range—See table at left. Select a range code for default unit.

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

G = gauge reference pressure
A = absolute reference; zero at full vacuum
VAC = gauge reference vacuum
CPD = compound; inHg vacuum, psi pressure

Time—auto shutoff time (user configurable)

-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 only. See cecomp.com/accessories for details.

-TP	Top port, gauge port on top of case
-HA	High accuracy, ±0.1% FS ±1 LSD
-PM	Panel mount, 4.1" x 4.1"

Calibration Cert. Option—add to end of model number

-NC	NIST traceability documentation, 5 points and date

TP
Top gauge port. Used for aircraft hydraulics.

Accessories—order separately

RB
High visibility orange rubber boot protects gauge for portable applications.

SCR14SS
Filter screen fitting keeps debris out of gauge sensor. For food vacuum packaging applications. 303SS body, 100 micron 304SS screen.

CON14SS
Quick connector to install or remove gauge without tools. 304 stainless steel, urethane seal.

Precautions

Approved Locations

The DPG2000B series is approved for use in the following Hazardous Locations.

IS Class I Div 1 Gp ABCD
T3C Ta = −40ºC to 82ºC; T4 Ta = −40ºC to 66ºC.
CL I Zone 0 AEx/Ex ia IIC
T3 Ta = −40ºC to 82ºC; T4 Ta = −40ºC to 66ºC

Installation

✔ Read these instructions before installing the gauge. Configuration may be easier before the gauge is installed. Contact the factory for assistance.

✔ Installation instructions must be strictly followed in compliance with Intrinsic Safety National Standard NEC 504 or ANSI/ISA RP 12.6 and the National Electrical Code.

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

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

✔ Due to the hardness of 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.

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

✔ 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 by forcing the housing.

Operation

✔ Use within the pressure range indicated on gauge label.

✔ Avoid permanent sensor damage! Do not apply vacuum to gauges not designated for vacuum operation.

✔ Use only with media compatible with 316L stainless steel. Gauges are not for oxygen service. Accidental rupture of sensor diaphragm may cause silicone oil inside sensor to react with oxygen.

✔ The DPG2000B series gauges must only be operated in specified ambient temperature ranges.

Maintenance

✔ The non-metallic cover of the pressure gauge is considered to constitute an electrostatic discharge hazard. Clean only with a damp cloth.

✔ Batteries must be replaced when the low battery indication comes on to prevent unreliable readings.

✔ WARNING: Replace batteries with approved type in non-hazardous locations only.

✔ Approved batteries are two Panasonic LR03 1.5 V AAA alkaline cells. Replace both batteries at the same time.

☒ WARNING: Substitution of batteries may impair intrinsic safety. Improper voltages will damage the gauge.

✔ WARNING: Substitution of components may impair intrinsic safety. Do not modify the gauge.

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

Battery Replacement

A low battery indication (either LOBAT or a ⊘ symbol depending on the model) will be shown in the upper left-hand corner of the display when the battery voltage falls sufficiently. The batteries should be replaced when the indicator comes on or unreliable readings may result.

WARNING: Replace batteries with approved type in non-hazardous locations only. Replace batteries with two Panasonic LR03 1.5 V AAA alkaline cells.

Replace both batteries with new ones at the same time. Do not mix different types of batteries. Substitution of components may impair intrinsic safety.

1. Remove the 6 Phillips screws on the back of the unit.

2. Remove batteries by lifting up the positive end of the battery (opposite the spring) taking care not to bend the spring.

3. Discard old batteries properly, do not discard into fire, sources of extreme heat, or in any hazardous manner.

4. Install batteries with correct orientation. The negative (flat) end of each battery should be inserted first facing the battery holder spring.

5. Replace the back cover, including the rubber gasket.
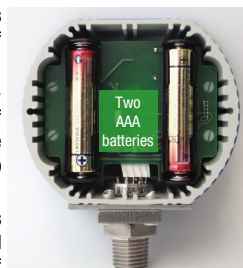
DS-DPG2000B rev. 12-12

Types of Gauges

Gauge reference sensors always read zero with an open gauge port. Ranges 1000 psi and higher use a 14.7 psi sealed reference sensor. They are functionally similar to gauge reference sensors.

Bipolar sensors read positive pressure and vacuum in the same units, and zero with the gauge port open.
Compound ranges read inHg for vacuum and psig for pressure.

Absolute reference gauges read zero at full vacuum. With an open gauge port, their readings will vary due to continuously changing barometric pressure.

psi	Compound	inHg	torr	mmHg	inH$_2$O	ftH$_2$O	oz/in^2	mmH$_2$O	cmH$_2$O	g/cm^2	kg/cm^2	atm	mbar	bar	kPa	MPa
0 to 14.70 psig vac	n/a	29.92 vac	760.0 vac	760.0 vac	406.8 vac	33.90 vac	235.1 vac	n/a	1033 vac	1033 vac	1.033 vac	1.000 vac	1013 vac	1.013 vac	101.3 vac	.1013 vac
−14.70 to 15.00 psig	−29.92 inHg to 15.00 psi	−29.92 to 30.54	−760.0 to 775.7	−760.0 to 775.7	−406.8 to 415.2	−33.90 to 34.61	−235.1 to 240.0	n/a	−1033 to 1055	−1033 to 1055	−1.033 to 1.055	−1.000 to 1.021	−1013 to 1034	−1.013 to 1.034	−101.3 to 103.4	−.1013 to .1034
−14.7 to 100.0 psig	−29.9 inHg to 100.0 psi	−29.9 to 203.6	−760 to 5171	−760 to 5171	−407 to 2768	−33.9 to 230.7	−235 to 1600	n/a	−1033 to 7031	−1033 to 7031	−1.033 to 7.031	−1.000 to 6.805	−1013 to 6895	−1.013 to 6.895	−101.3 to 689.5	−.1013 to .6895
−14.7 to 200.0 psig	−29.9 inHg to 200.0 psi	−29.9 to 407.2	n/a	n/a	−407 to 5536	−33.9 to 461.4	−235 to 3200	n/a	n/a	n/a	−1.03 to 14.06	−1.00 to 13.61	n/a	−1.01 to 13.79	−101 to 1379	−.101 to 1.379
0 to 3.000 psig	n/a	6.108	155.1	155.1	83.0	6.921	48.00	2109	210.9	210.9	.2109	.2041	206.8	.2068	20.68	n/a
0 to 5.000 psig	n/a	10.18	258.6	258.6	138.4	11.54	80.0	3515	351.5	351.5	.3515	.3402	344.7	.3447	34.47	n/a
0 to 15.00 psig	n/a	30.54	775.7	775.7	415.2	34.61	240.0	n/a	1055	1055	1.055	1.021	1034	1.034	103.4	.1034
0 to 30.00 psig	n/a	61.08	1552	1552	830	69.21	480.0	n/a	2109	2109	2.109	2.041	2068	2.068	206.8	.2068
0 to 60.00 psig	n/a	122.2	3103	3103	1661	138.4	960	n/a	4218	4218	4.218	4.083	4137	4.137	413.7	.4137
0 to 100.0 psig	n/a	203.6	5171	5171	2768	230.7	1600	n/a	7031	7031	7.031	6.805	6895	6.895	689.5	.6895
0 to 200.0 psig	n/a	407.2	n/a	n/a	5536	461.3	3200	n/a	n/a	n/a	14.06	13.61	n/a	13.79	1379	1.379
0 to 300.0 psig	n/a	610.8	n/a	n/a	n/a	692.0	4800	n/a	n/a	n/a	21.09	20.41	n/a	20.68	2068	2.068
0 to 500.0 psig	n/a	1018	n/a	n/a	n/a	1153	n/a	n/a	n/a	n/a	35.15	34.02	n/a	34.47	3447	3.447
0 to 1000 psig	n/a	2036	n/a	n/a	n/a	2307	n/a	n/a	n/a	n/a	70.31	68.05	n/a	68.95	6895	6.895
0 to 2000 psig	n/a	4072	n/a	n/a	n/a	4614	n/a	n/a	n/a	n/a	140.6	136.1	n/a	137.9	1379	13.79
0 to 3000 psig	n/a	6108	n/a	n/a	n/a	6921	n/a	n/a	n/a	n/a	210.9	204.1	n/a	206.8	n/a	20.68
0 to 5000 psig	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	351.5	340.2	n/a	344.7	n/a	34.47
15.00 to 0 psi abs	n/a	30.54 abs	775.7 abs	775.7 abs	415.1 abs	34.61 abs	240.0 abs	n/a	1055 abs	1055 abs	1.055 abs	1.021 abs	1034 abs	1.034 abs	103.4 abs	.1034 abs
30.00 to 0 psi abs	n/a	61.08 abs	1552 abs	1552 abs	830 abs	69.21 abs	480.0 abs	n/a	2109 abs	2109 abs	2.109 abs	2.041 abs	2068 abs	2.068 abs	206.8 abs	.2068 abs
100.0 to 0 psi abs	n/a	203.6 abs	5172 abs	5172 abs	2767 abs	230.7 abs	1600 abs	n/a	7031 abs	7031 abs	7.031 abs	6.805 abs	6895 abs	6.895 abs	689.5 abs	.6895 abs

Dimensions

¼" NPT
3.38"
2.88"
0.75"
1.65"

Cecomp maintains a constant effort to upgrade and improve its products. Specifications are subject to change without notice. See cecomp.com for latest product information. Consult factory for your specific requirements.
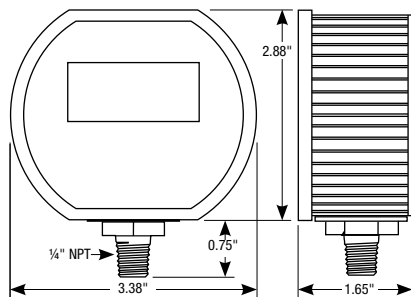
Power Up

Press and hold the center power button for approximately 1 second.

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

The actual pressure and units are displayed. The gauge is ready for use.

Zero the Display

This applies to gauge reference models only. Absolute reference gauges do not use the zero feature since they read atmospheric pressure under normal conditions.

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

Press Zero/Clear button until $oooo$ is displayed and then release the button. The gauge in now zeroed.

Attempting to zero the gauge with greater than approximately 3% of full-scale pressure or vacuum will result in an error indication of $Err\ O$ alternately displayed with the reading. Press the Zero/Clear button to reset the error condition.

Normal Operation

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 and restarts whenever a button is pushed. Gauges configured as on/off must be shut off using the power button.

If excessive vacuum is applied to a pressure-only gauge, the display will indicate $-Err$ until the vacuum is released.

Applying vacuum to a pressure-only gauge may damage the sensor. Excessive pressure (112.5% over range), will cause an out-of-range indication of $I---$ or $I.-.-.-$ depending on model.

Display Backlighting (BL Option Only)

Display backlighting will operate for one minute when any button is pressed provided the front light sensor detects low ambient light levels.

Backlighting may not be apparent under some lighting conditions. Backlighting may also be configured to be on at all times (which will shorten battery life), or be turned off at all times.

Memory

The M2 version displays captured minimum and maximum readings. Min and/or max may be turned off in user configuration.

Press and release the Memory button to view memory locations.

To store a reading, briefly press the center button while the desired memory location is displayed. The gauge is in the peak hold mode when the readings are captured.

To clear a respective memory location, press Zero/Clear button and release when $c\ l\ r$ is displayed .

Press and release the center button to return to normal operation.

Shut-Down

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

When an auto shutoff timer is used, the display indicates OFF five seconds prior to shutoff. Press any button to keep the gauge on.

The auto shutoff and backlight (if equipped) timers are reset whenever a button is pressed and released.

If the gauge is set up without auto shutoff (on/off operation) it will stay on until manually shut off or until the batteries are depleted. Turn gauge off when not in use to conserve batteries.

Accessing User Configuration

Configuration must only be done in a non-hazardous area.

Remove the 6 Phillips screws on the back of the unit and remove the rear cover.

Enable/Disable Switch

Move the switch on the circuit board to the ENABLE position.

The front keypad ▲ UP and ▼ DOWN buttons are used to increment settings up or down.

User Configuration Buttons

With the gauge off, press and hold the ▲ UP button. Then press the center power button. Release all buttons when the display indicates CFG and the program version. Then the full-scale range is indicated and the display is tested.

The display then indicates _ _ _ _ with the first underscore blinking, with $CFGPC$ (configuration passcode) on the lower display.

Note: The gauge will automatically revert to normal operation if no buttons are pressed for approximately 15 seconds. To cancel and return to normal operation, press and release the front button without entering any passcode characters.

User Configuration Passcode Entry

The factory default is 3510, but this may be changed by the user under the Passcode Configuration section. If an incorrect passcode is entered, the gauge will return to the start of the passcode entry sequence.

1. Use the ▲ UP or ▼ DOWN buttons to set the first digit to 3.
2. Press and release the front button to move to the next position. The 3 will remain, and the second position will be blinking.
3. Use the ▲ UP or ▼ DOWN buttons to select 5.
4. Press and release the front button to index to the next position. 35 will remain, and the third position will be blinking.
5. Use the ▲ UP or ▼ DOWN buttons to select 1.
6. Press and release the front button to index to the next position. 351 will remain, and the fourth position will be blinking.
7. Use the ▲ UP or ▼ DOWN buttons to select 0.
8. Press and release the front center button to proceed.

Factory/User Configuration

This gives the choice of resetting the gauge features to the factory settings or continuing with user configuration.

The upper display section will be blank, and the lower section will display either $USER\_$ or $FCTRY$.

If $FCTRY$ is selected, the existing user configuration will be replaced by the original factory configuration.

To select $FCTRY$, press and release the ▲ UP button.

With $FCTRY$ displayed press and release the front button to restore the factory configuration and restart the gauge.

If $USER\_$ is selected, the user configuration can be modified as described in the following steps.

To select $USER\_$, press and release the ▼ DOWN button. The lower display will indicate.

With $USER\_$ displayed press and release the front center button to continue.

The configuration parameters vary depending on the model. Go to the appropriate section for your gauge.
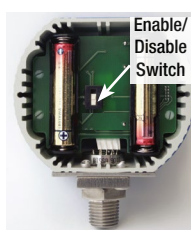
Max/Min Memory Configuration

Use the ▲ and ▼ buttons to select from the following:

MX/MN Both highest and lowest values will be captured

$MX/--$ Only highest value will be captured

$--/MN$ Only lowest value will be captured

$--/--$ Capture feature is disabled

Press and release the center button to move to the next parameter.

The upper display section will indicate $c\ l\ r$.

Use the ▲ and ▼ buttons to select from the following:

$AUTO$ Automatically clear max. and min. values when the gauge is powered off

MAN Manually clear max. and min. values

Press and release the center button to move to the next parameter.

Gauge Type Configuration

This will only appear with 15, 100, or 200 psig ranges that were originally ordered as compound gauges.

Use the ▲ and ▼ buttons to select from the following:

$-/+EU$ Vacuum is indicated as negative pressure in the selected engineering units

$CMPND$ Vacuum is negative INHG, pressure is PSIG

When the desired configuration is displayed, press and release the center button to save your selection and move to the next parameter.

Units Selection

The upper display will be blank with the engineering units in the lower display.

Use the ▲ and ▼ buttons to navigate through the list of engineering units. Available engineering units depend on the sensor range.

When the desired units are displayed, press and release the center button to save your selection and move to the next parameter.

Auto Shutoff Time

The auto shutoff time is displayed on the upper display. The lower display will indicate $AST\ M$ if the time displayed is in minutes or $AST\ H$ if it is in hours.

Use the ▲ and ▼ buttons to select 0 (manual shutoff), 1, 2, 5, 10, 15, 20 or 30 minutes, or 1, 2, 4, or 8 hours.

A setting of zero disables the auto shutoff timer. This requires using the center power button to shut the gauge off.

If the gauge was ordered with a custom shutoff time it will become unavailable if the time is changed. Reset the gauge to the original factory configuration as described previously to restore the custom time.

When the desired shutoff time is displayed, press and release the center button to save your selection and move to the next parameter.

Backlight Time Selection (BL Option Only)

The upper display will indicate bL to indicate backlight setup.

Use the ▲ and ▼ buttons to select from the following:

$AUTO$ Display backlight enabled for 1 minute with any keypress

ON Display backlight on whenever the gauge is on

OFF Display backlight is disabled

Completing Configuration

Press and release the front button to save the user configuration and restart the gauge.

This completes the configuration for this model.

Move the switch on the circuit board to the DISABLE position and replace the rear cover including the rubber gasket.

Calibration Preparation

Calibration must only be done in a non-hazardous area. See Installation and Precautions.

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 re-calibration is customary. Calibration should only be performed by qualified individuals using appropriate calibration standards and procedures.

The calibration equipment should be at least four times more accurate than the gauge being calibrated.

The calibration system must 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.

It is good practice to install fresh batteries before calibration.

Allow the gauge to equalize to normal room temperature (about 20 minutes minimum) before calibration.

Calibration

Enable/Disable Switch
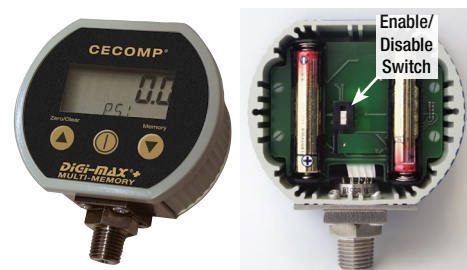
See calibration preparation section. See rear label of gauge for model identification and range.

Remove the 6 Phillips screws on the back of the unit and remove the rear cover.

Move the switch on the circuit board to the ENABLE position.

Use the front keypad buttons ▲ as UP and ▼ as DOWN.

Entering Calibration Mode

With the gauge off, press and hold the ▼ DOWN button, then press the center power button.

Release all buttons when the display indicates *CAL*.

The display begins by indicating the full-scale positive pressure rating of the gauge in the engineering units as configured by the factory, and then shows all display segments.

Before the gauge enters the calibration mode, the display initially indicates _ _ _ _ with the first underscore blinking, with *CALPC* (calibration passcode) on the lower display.

Note: The gauge will automatically revert to normal operation if no buttons are operated for approximately 15 seconds. To cancel and return to normal operation, press and release the power button without entering any passcode characters.

Enter the passcode as described in the User Configuration Passcode Entry section. The default is 3510, but this is user changeable.

Calibration Mode

The gauge remains in the calibration mode until restarted manually or power is removed. Features not related to calibration are disabled.

The calibration controls are non-interactive. It is possible to perform a zero calibration only and then save to exit the calibration mode.

The calibration may be performed in any of the available engineering units as well as percent (PCT). Compound range models are set for the same engineering units for pressure and for vacuum.

For greatest calibration accuracy, use the ▲ UP and ▼ DOWN buttons to select engineering units with highest number of display counts.

Press and release the center power button when the desired engineering units are displayed.

Calibration—continued

Sensor	Suggested units for calibration
3 PSI	3.000 PSI
5 PSI	5.000 PSI
15 PSI	775.7 MMHG (TORR)
30 PSI	69.20 FTH2O
60 PSI	60.00 PSI
100 PSI	7.031 KG/CM2
200 PSI	407.2 INHG
300 PSI	610.8 INHG
500 PSI	500.0 PSI
1000 PSI	70.31 KG/CM2
3000 PSI	6108 INHG
5000 PSI	5000 PSI
Any	100.00 PCT (percent)

The display will then indicate the currently applied pressure in the engineering units selected for calibration.

▲ UP and ▼ DOWN Button Operation

Each time one of the up or down buttons is pressed and released quickly, a small change is made to the digitized pressure signal. It may take more than one of these small changes to result in a single digit change on the display.

To make larger changes, press and hold the appropriate up or down button. After about one second, the display will begin to change continuously. Release the button to stop. Then make fine adjustments by pressing and quickly releasing the appropriate button.

Gauge Reference Pressure Gauges

Apply zero pressure by venting the gauge port to atmosphere. The character display will alternate between *ZERO* and *CAL*.

Press the ▲ UP and ▼ DOWN buttons to obtain a zero indication on the gauge display.

Apply full-scale pressure. The character display will alternate between *+SPAN* and *CAL*.

Press the ▲ UP and ▼ DOWN buttons to match the gauge display to the full-scale pressure reading on the calibrator.

Apply 50% full-scale pressure. The character display will alternate between *+MID* and *CAL*.

Press the ▲ UP and ▼ DOWN buttons to match the gauge display to the 50% of full-scale pressure on the calibrator.

Gauge Reference Vacuum Gauges

Apply zero pressure by venting the gauge port to atmosphere. The character display will alternate between *ZERO* and *CAL*.

Press the ▲ UP and ▼ DOWN buttons to obtain a zero indication on the gauge display.

Apply full-scale vacuum. The character display will alternate between *+SPAN* and *CAL*.

Press the ▲ UP and ▼ DOWN buttons to match the gauge display to the full-scale vacuum indication on the calibrator.

Apply 50% full-scale vacuum. The character display will alternate between *+MID* and *CAL*.

Press the ▲ UP and ▼ DOWN buttons to match the gauge display to the 50% of full-scale vacuum indication on the calibrator.

Absolute Reference Gauges

Apply full vacuum. The character display will alternate between *ZERO* and *CAL*.

Press the ▲ UP and ▼ DOWN buttons until the display indicates zero.

Apply full-scale pressure. The character display will alternate between *+SPAN* and *CAL*.

Press the ▲ UP and ▼ DOWN buttons to match the gauge display to the full-scale pressure reading on the calibrator.

Apply 50% of full-scale pressure. The lower display will alternate between *+MID* and *CAL*.

Press the ▲ UP and ▼ DOWN buttons to match the gauge display to the 50% of full-scale reading on the calibrator.

Calibration—continued

Compound and Bipolar Gauges

In addition to the steps described above for pressure gauges, apply full-scale vacuum. The character display will alternate between *-SPAN* and *CAL*.

Press the ▲ UP and ▼ DOWN buttons to match the gauge display to the full-scale vacuum reading on the calibrator.

For bipolar (±) and −30.00inHg/+15.00psig compound range models only, apply 50% full-scale vacuum. The character display will alternate between *-MID* and *CAL*.

Press the ▲ UP and ▼ DOWN buttons to match the gauge display to the 50% of full-scale vacuum on the calibrator.

Save Calibration

Once the adjustments are complete, press and hold the center button until the display indicates - - - - then release the button to store the calibration parameters in non-volatile memory and restart the gauge.

Verify the pressure indications at 0%, 25%, 50%, 75% and 100% of full scale.

Move the switch on the circuit board to the DISABLE position.

Replace the back cover, including the rubber gasket.

User Passcode

User-defined passcode configuration allows changing of the factory 3510 passcode to new value for configuration and calibration.

Configuration must only be done in a non-hazardous area.

Remove the rear 6 Phillips screws and remove the rear cover.

Move the switch on the circuit board to the ENABLE position.

Single button versions have internal UP and DOWN buttons located on the circuit board.

Three button versions use the front keypad ▲ as UP and ▼ as DOWN. Operation of both versions is the same except for the location of the buttons.

View Or Change User Configuration Passcode

With the unit off, press and hold the ▲ UP button, then press the power button. Release all buttons when the display indicates *CFG*.

View Or Change User Calibration Passcode

With the unit off, press and hold the ▼ DOWN button, then press the power button. Release all buttons when *CAL* is shown.

Enter Access Code 1220

Before the unit enters the view or change passcode mode, the display initially indicates _ _ _ _ with the first underscore blinking, and with *CFGPC* or *CALPC* on the character display.

Note: The gauge will automatically revert to normal operation if no buttons are operated for approximately 15 seconds.

To cancel and return to normal operation, press and release the POWER button without entering any passcode characters.

Use the ▲ UP and ▼ DOWN, and center buttons to enter the 1220 passcode.

Press and release the power button to proceed.

Note: If an incorrect access code was entered, the gauge will return to the start of the access code entry sequence.

Once the access code has been entered correctly, the display will indicate the existing user-defined passcode with either *CFGPC* or *CALPC* on the character display.

1. Press the ▲ UP or ▼ DOWN button to select the first character of the new passcode.
2. When the desired first character is displayed, press and release the center power button to move to the next character.
3. Repeat above until the entire passcode is complete.
4. To exit, press and hold the center power button. Release the button when the display indicates - - - - to restart the gauge.
5. Move the switch on the circuit board to the DISABLE position.
6. Replace the back cover, including the rubber gasket.