

- ±0.25% Test Gauge Accuracy
- 316 Stainless Steel Wetted Parts
- Selectable Units
- Selectable Auto Shutoff Times
- Zero Function
- Store Readings in Memory

Specifications

Ranges and Resolution

See table below for popular ranges and units
See page 2 table for available ranges and engineering units
Resolution is fixed for each engineering unit

Accuracy

Includes linearity, hysteresis, repeatability
Standard: ±0.25% of full scale ±1 least significant digit
-HA: ±0.1% FS ±1 LSD (see below for availability)

Display

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

Batteries, Battery Life, Low Battery Indication

B: 2 AA alkaline, approx. 2000 hours
BL: 2 AA alkaline, approx. 150 to 1500 hours depending on backlight usage
Low battery symbol on display

Controls & Functions

Three front buttons turn gauge on or off, zeros gauge reference gauges, and cycles through functions
BL: Front button activates backlighting for 1 minute

Memory

-M4: 4 memory, user settable to 1, 2, 3, 4 or four wheel designations: LF, RF, LR, RR
-M6: Six memory, user settable to 1, 2, 3, 4, 5, 6 or aircraft tire designations: NLG 1, NLG 2, MLG 1, MLG 2, MLG 3, MLG 4

Calibration

Pass code protected calibration
Non-interactive zero, span, and linearity, ±10% of range

Auto Shutoff

User selectable 1 minute to 8 hours or front button on/off
Factory default 5 minutes, unless other time is specified

Weight

Gauge: 9 ounces (approximately)
Shipping: 1 pound (approximately)

Material

F20B: Extruded aluminum case, epoxy powder coated, ABS/ polycarbonate bezel, front and rear gaskets, polycarbonate label
Optional -MC aluminum bezel
F20BN: ABS/polycarbonate NEMA 4X case, rear gasket, polycarbonate label

Connection, Material, Media Compatibility

1/4" NPT male fitting, 316L stainless steel
All wetted parts are 316L stainless steel
Compatible with most liquids and gases

Overpressure

3000 psig range: 5000 psig
5000 psig range: 7500 psig
All others: 2 X pressure range
112.5% FS out-of-range display:
i --- or i ----

Burst Pressure

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

Storage Temperature

-40 to 203°F (-40 to 95°C)

Operating Temperature

-4 to 185°F (-20 to 85°C)

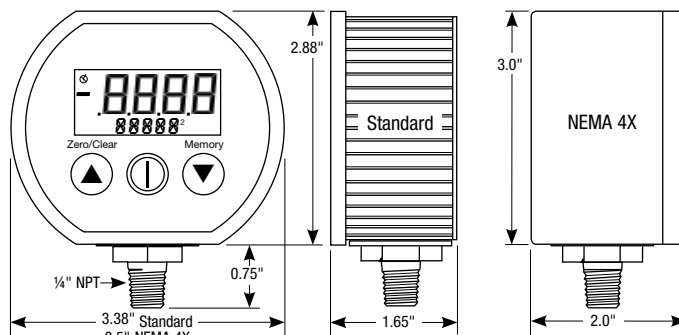
Compensated Temperature

32 to 158°F (0 to 70°C)

F20B



F20BN



How to Order

Step 1: Model

Select standard housing or NEMA 4X
Select standard display or with display backlighting

Model	Features
F20B	Standard housing
F20BBL	Standard housing, backlit display

Model	Features
F20BN	NEMA 4X housing
F20BNBL	NEMA 4X housing, backlit display

Step 2: Range

Specify pressure range and units.
See table on other side for complete listing of available ranges and engineering units

Step 3: Memory

-M4 Four memory, user settable to 1, 2, 3, 4 or 4-wheel designations: LF, RF, LR, RR
-M6 Six memory, user settable to 1, 2, 3, 4, 5, 6 or aircraft tire designations: NLG 1, NLG 2, MLG 1, MLG 2, MLG 3, MLG 4

Step 4: Options—add to end of model number

- MC Metal front cover. Machined aluminum, epoxy powder coated. Synthetic oil resistant. Not available with NEMA 4X models.
- CS Case stiffener strengthens case bottom for tire pressure applications.
- CC Conformal coating on circuit board for moisture resistance. Recommended for out door applications.
- TP Top port, gauge port on top of case. Used primarily for tire pressure applications. Not available with NEMA 4X models.
- HA High accuracy, ±0.1% FS ±1 LSD. Not available with vacuum, compound, bipolar, absolute, or 3 psi sensor ranges.
- PM Panel mount, 4.1" x 4.1". Not available with NEMA 4X models.
- SM Surface mount plate. Battery gauges only. Not available with NEMA 4X models.

Range Code	Default Range	Selectable Engineering Units. See table on next page for additional ranges.															
3PSIG	0-3.000 PSIG	inHg	inH ₂ O	oz/in ²	g/cm ²	mmHg	torr	mbar	bar	mmH ₂ O	cmH ₂ O	ftH ₂ O	kPa		kg/cm ²	atm	
5PSIG	0-5.000 PSIG	inHg	inH ₂ O	oz/in ²	g/cm ²	mmHg	torr	mbar	bar	mmH ₂ O	cmH ₂ O	ftH ₂ O	kPa		kg/cm ²	atm	
15PSIG	0-15.00 PSIG	inHg	inH ₂ O	oz/in ²	g/cm ²	mmHg	torr	mbar	bar		cmH ₂ O	ftH ₂ O	kPa	MPa	kg/cm ²	atm	
30PSIG	0-30.00 PSIG	inHg	inH ₂ O	oz/in ²	g/cm ²	mmHg	torr	mbar	bar		cmH ₂ O	ftH ₂ O	kPa	MPa	kg/cm ²	atm	
60PSIG	0-60.00 PSIG	inHg	inH ₂ O	oz/in ²	g/cm ²	mmHg	torr	mbar	bar		cmH ₂ O	ftH ₂ O	kPa	MPa	kg/cm ²	atm	
100PSIG	0-100.0 PSIG	inHg	inH ₂ O	oz/in ²	g/cm ²	mmHg	torr	mbar	bar		cmH ₂ O	ftH ₂ O	kPa	MPa	kg/cm ²	atm	
200PSIG	0-200.0 PSIG	inHg	inH ₂ O	oz/in ²					bar			ftH ₂ O	kPa	MPa	kg/cm ²	atm	
300PSIG	0-300.0 PSIG	inHg		oz/in ²					bar			ftH ₂ O	kPa	MPa	kg/cm ²	atm	
500PSIG	0-300.0 PSIG	inHg							bar			ftH ₂ O	kPa	MPa	kg/cm ²	atm	
1000PSIG	0-1000 PSIG	inHg							bar			ftH ₂ O	kPa	MPa	kg/cm ²	atm	
2000PSIG	0-2000 PSIG	inHg							bar			ftH ₂ O	kPa	MPa	kg/cm ²	atm	
3000PSIG	0-3000 PSIG	inHg							bar			ftH ₂ O	MPa	kg/cm ²	atm		
5000PSIG	0-5000 PSIG								bar				MPa	kg/cm ²	atm		

Step 5: Accessories

- RB Protective rubber boot. Not for NEMA 4X models.
- CD Calibration data, 5 test points, test date.
- NC NIST certificate with traceability documentation, 5 test points and date.

Examples

Typical stock car tire pressure gauge
F20B100PSIG-M4-CS-RB
Typical aircraft tire pressure gauge
F20BBL300PSIG-M6-MC-CS-CC-RB
Typical aircraft strut pressure gauge
F20BBL3000PSIG-M4-MC-CS-CC-RB



TP top port option with RB rubber Boot

Installation Precautions

- ✓ Read these instructions before installing the gauge. The configuration options may be easier to set up before the gauge is installed.
- ✓ Due to the hardness of 316 stainless steel, it is recommended that a thread sealant be used to ensure leak-free operation.
- ✓ Install or remove gauge using a wrench on the hex fitting only.
- ✓ For contaminated media use an appropriate screen or filter to keep debris out of gauge port.

- ✗ Do not attempt to turn gauge by forcing the housing.
- ⚠ Use fittings appropriate for the pressure range of the gauge.
- ✗ Do not apply vacuum to gauges not designed for vacuum operation.
- ✗ NEVER insert objects into the gauge port or blow out with compressed air. Permanent damage not covered by warranty will result to the sensor.

Battery Replacement

A low battery indication will be shown in the upper left-hand corner of the display when the battery voltage falls sufficiently. The battery should be replaced soon after the indicator comes on or unreliable readings may result.

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 battery holder spring.
3. Discard old batteries properly, do not discard into fire, sources of extreme heat, or in any hazardous manner.
4. Always replace both batteries at the same time with high quality alkaline batteries. Install batteries with correct orientation. The negative (flat) end of each battery should be inserted first facing the battery holder spring.
6. Replace the back cover, including the rubber gasket.

Ranges and selectable Units

Range Codes

The range code is part of the gauge model number and indicates the default range when the gauge is ordered. Consult factory with special requirements or engineering units.

Selectable Ranges

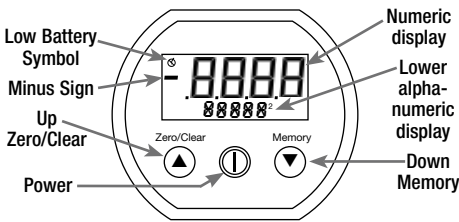
Engineering units may be changed to any of those listed in the same Selectable Units group as shown in the table below.

Conversion

Engineering unit conversions are calculated from the factory default unit to the newly selected units. The ranges listed as Selectable Units are approximate only.

Range Codes	Selectable Units	Range Codes	Selectable Units	Range Codes	Selectable Units	Range Codes	Selectable Units
3PSIG	0 to 3.000 psig	1000MBARG	0 to 1000 mbar continued ▲	4100MBARG	0 to 4100 mbar continued ▲	200PSIG	0 to 200.0 psig
6INHGG	0 to 6.000 inHg	1000CMH2OG	0 to 1000 cmH2O	4200CMH2OG	0 to 4200 cmH2O	400INHGG	0 to 400.0 inHg
85INH2OG	0 to 85.0 inH2O	35FTH2O	0 to 35.00 ftH2O	140FTH2O	0 to 140.0 ftH2O	5500INH2OG	0 to 5500 inH2O
5OZING	0 to 50.00 oz/in ²	100KPAG	0 to 100.0 kPa	400KPAG	0 to 400.0 kPa	3200ZING	0 to 3200 oz/in ²
210GCMG	0 to 210.0 g/cm ²	0.1MPAG	0 to .1000 MPa	0.4MPAG	0 to .4000 MPa	480FTH2O	0 to 480.0 ftH2O
150MMHGG	0 to 150.0 mmHg	1BARG	0 to 1000 bar	4BARG	0 to 4.000 bar	1400KPAG	0 to 1400 kPa
150TORRG	0 to 150.0 torr	1KGCMMG	0 to 1000 kg/cm ²	4KGCMMG	0 to 4.000 kg/cm ²	1.4MPAG	0 to 1.400 MPa
200MBARG	0 to 200.0 mbar	1ATMG	0 to 1000 atm	4ATMG	0 to 4.000 atm	14BARG	0 to 14.00 bar
200CMH2OG	0 to 200.0 cmH2O					14KGCMMG	0 to 14.00 kg/cm ²
200MMH2OG	0 to 2000 mmH2O	Range Codes	Selectable Units	Range Codes	Selectable Units	14ATMG	0 to 14.00 atm
7FTH2O	0 to 7.000 ftH2O	±15PSIG	-15.00 to 15.00 psig	100PSIA	100.0 to 0 psia		
20KPAG	0 to 20.00 kPa	-30INHG/15PSIG	-30.00 inHg to 15.00 psig	200INHGA	200.0 to 0 inHg abs	Range Codes	Selectable Units
		±30INHGG	-30.00 to 30.00 inHg	2770INH2OA	2770 to 0 inH2O abs	300PSIG	0 to 300.0 psig
Range Codes	Selectable Units	±400INH2OG	-400 to 400 inH2O	1600ZINA	1600 to 0 oz/in ² abs	610INHGG	0 to 610.0 inHg
5PSIG	0 to 5.000 psig	±240ZING	-240.0 to 240.0 oz/in ²	7000GMA	7000 to 0 g/cm ² abs	4800ZING	0 to 4800 oz/in ²
10INHGG	0 to 10.00 inHg	±1000GCMG	-1000 to 1000 g/cm ²	5200MMHGA	5200 to 0 mmHg abs	700FTH2O	0 to 700.0 ftH2O
140INH2OG	0 to 140.0 inH2O	±760MMHGG	-760 to 760 mmHg	5200TORRA	5200 to 0 torr abs	2000KPAG	0 to 2000 kPa
80ZING	0 to 80.0 oz/in ²	±760TORRG	-760 to 760 torr	7000MBARA	7000 to 0 mbar abs	2MPAG	0 to 2.000 MPa
350GCMG	0 to 350.0 g/cm ²	±1000MBAR	-1000 to 1000 mbar	7000CMH2OA	7000 to 0 cmH2O abs	20BARG	0 to 20.00 bar
260MMHGG	0 to 260.0 mmHg	±1000CMH2OG	-1000 to 1000 cmH2O	700KPAA	700.0 to 0 kPa abs	20KGCMMG	0 to 20.00 kg/cm ²
260TORRG	0 to 260.0 torr	±100KPAG	-100.0 to 100.0 kPa	0.7MPAA	0 to .7000 to 0 MPa abs	20ATMG	0 to 20.00 atm
350MBARG	0 to 350.0 mbar	±0.1MPAG	-.1000 to .1000 MPa	7BARA	0 to 7.000 to 0 bar abs		
350CMH2OG	0 to 350.0 cmH2O	±1BARG	-1.000 to 1.000 bar	7KGCMA	0 to 7.000 to 0 kg/cm ² abs	Range Codes	Selectable Units
3500MMH2OG	0 to 3500 mmH2O	±1KGCMMG	-1.000 to 1.000 kg/cm ²	7ATMA	0 to 7.000 to 0 atm abs	500PSIG	0 to 500.0 psig
12FTH2O	0 to 12.00 ftH2O	±1ATMG	-1.000 to 1.000 atm			1020INHGG	0 to 1020 inHg
35KPAG	0 to 35.00 kPa			Range Codes	Selectable Units	1150FTH2O	0 to 1150 ftH2O
Range Codes	Selectable Units	Range Codes	Selectable Units	-15V100PSIG	-15.0 to 100.0 psig	3500KPAG	0 to 3500 kPa
15PSIA	15.00 to 0 psia	30PSIA	30.00 to 0 psia	-30INHG/100PSIG	-30.0 inHg to 100.0 psig	3.5MPAG	0 to 3.500 MPa
30INHGA	30.00 to 0 inHg abs	60INHGA	60.00 to 0 inHg abs	-30V200INHGG	-30.0 to 200.0 inHg	35BARG	0 to 35.00 bar
400INH2OA	400.0 to 0 inH2O abs	850INH2OA	850 to 0 inH2O abs	-400V2770INH2OG	-400 to 2770 inH2O	35KGCMMG	0 to 35.00 kg/cm ²
240ZINA	240.0 to 0 oz/in ² abs	480ZINA	480.0 to 0 oz/in ² abs	240V1600ZING	-240 to 1600 oz/in ²	35ATMG	0 to 35.00 atm
1000GMA	1000 to 0 g/cm ² abs	2100GMA	2100 to 0 g/cm ² abs	760V5200MMHGG	-760 to 5200 mmHg	Range Codes	Selectable Units
760MMHGA	760.0 to 0 mmHg abs	1600MMHGA	1600 to 0 mmHg abs	760V5200TORRG	-760 to 5200 torr	1000PSIG	0 to 1000 psig
760TORRA	760.0 to 0 torr abs	1600TORRA	1600 to 0 torr abs	-100V700KPAG	-100 to 700 kPa	2040INHGG	0 to 2040 inHg
1000MBARA	1000 to 0 mbar abs	2000MBARA	2000 to 0 mbar abs	-0.1V0.7MPAG	-.100 to .700 MPa	2300FTH2O	0 to 2300 ftH2O
1000CMH2OA	1000 to 0 cmH2O abs	2100CMH2OA	2100 to 0 cmH2O abs	-1V7BARG	-1.00 to 7.00 bar	7000KPAG	0 to 7000 kPa
100KPAA	100.0 to 0 kPa abs	200KPAA	200.0 to 0 kPa abs	-1V7KGCMMG	-1.00 to 7.00 kg/cm ²	7MPAG	0 to 7.000 MPa
0.1MPAA	0 to 0.1000 MPa abs	0.2MPAA	0 to 0.2000 to 0 MPa abs	-1V7ATMG	-1.00 to 7.00 atm	70BARG	0 to 70.00 bar
1BARA	1.000 to 0 bar abs	2BARA	0 to 2.000 to 0 bar abs			70KGCMMG	0 to 70.00 kg/cm ²
1KGCMA	1.000 to 0 kg/cm ² abs	2KGCMA	0 to 2.000 to 0 kg/cm ² abs	Range Codes	Selectable Units	70ATMG	0 to 70.00 atm
1ATMA	1.000 to 0 atm abs	2ATMA	0 to 2.000 to 0 atm abs	100PSIG	0 to 100.0 psig		
		Range Codes	Selectable Units	200INHGG	0 to 200.0 inHg	Range Codes	Selectable Units
Range Codes	Selectable Units	30PSIG	0 to 30.00 psig	2770INH2OG	0 to 2770 inH2O	2000PSIG	0 to 2000 psig
15PSIVAC	0 to 15.00 psig vacuum	60INHGG	0 to 60.00 inHg	1600ZING	0 to 1600 oz/in ²	4070INHGG	0 to 4070 inHg
30INHGVAC	0 to 30.00 inHg vacuum	850INH2OG	0 to 850 inH2O	7000GCMG	0 to 7000 g/cm ²	4600FTH2O	0 to 4600 ftH2O
400INH2OVAC	0 to 400 inH2O vacuum	2100GCMG	0 to 2100 g/cm ²	5200MMHGG	0 to 5200 mmHg	14MPAG	0 to 14.00 MPa
240ZINVAC	0 to 240.0 oz/in ² vacuum	1600MMHGG	0 to 1600 mmHg	5200TORRG	0 to 5200 torr	140BARG	0 to 140.0 bar
1000GCMVAC	0 to 1000 g/cm ² vacuum	1600TORRG	0 to 1600 torr	7000MBARG	0 to 7000 mbar	140KGCMMG	0 to 140.0 kg/cm ²
760MMHGVAC	0 to 760.0 mmHg vacuum	2000MBARG	0 to 2000 mbar	7000CMH2OG	0 to 7000 cmH2O	140ATMG	0 to 140.0 atm
760TORRVAC	0 to 760.0 torr vacuum	2100CMH2OG	0 to 2100 cmH2O	230FTH2O	0 to 230.0 ftH2O	Range Codes	Selectable Units
1000MBARVAC	0 to 10000 mbar vacuum	70FTH2O	0 to 70.00 ftH2O	700KPAG	0 to 700.0 kPa	3000PSIG	0 to 3000 psig
1000CMH2OVAC	0 to 10000 cmH2O vacuum	200KPAG	0 to 200.0 kPa	0.7MPAG	0 to .7000 MPa	6100INHGG	0 to 6100 inHg
100KPAVAC	0 to 100.0 kPa vacuum	0.2MPAG	0 to 0.2000 MPa	7BARG	0 to 7.000 bar	6900FTH2O	0 to 6900 ftH2O
0.1MPAVAC	0 to .1000 MPa vacuum	2BARG	0 to 2.000 bar	7KGCMMG	0 to 7.000 kg/cm ²	20MPAG	0 to 20.00 MPa
1BARVAC	0 to 1.000 bar vacuum	2KGCMMG	0 to 2.000 kg/cm ²	7ATMG	0 to 7.000 atm	200BARG	0 to 200.0 bar
1KGCMVAC	0 to 35.00 kg/cm ² vacuum	2ATMG	0 to 2.000 atm	Range Codes	Selectable Units	200KGCMMG	0 to 200.0 kg/cm ²
1ATMVAC	0 to 1.000 atm vacuum			-15V200PSIG	-15.0 to 200.0 psig	20ATMG	0 to 20.00 atm
		Range Codes	Selectable Units	-30INHG/200PSIG	-30.0 inHg to 200.0 psig	Range Codes	Selectable Units
Range Codes	Selectable Units	60PSIG	0 to 60.00 psig	-30V400INHGG	-30.0 to 400.0 inHg	5000PSIG	0 to 5000 psig
15PSIG	0 to 15.00 psig	120INHGG	0 to 120.0 inHg	400V5500INH2OG	-400 to 5500 inH2O	35MPAG	0 to 35.00 MPa
30INHGG	0 to 30.00 inHg	1660INH2OG	0 to 1660 inH2O	240V3200ZING	-240 to 3200 oz/in ²	350BARG	0 to 350.0 bar
400INH2OG	0 to 400.0 inH2O	960ZING	0 to 960 oz/in ²	-100V1400KPAG	-100 to 1400 kPa	350KGCMMG	0 to 350.0 kg/cm ²
240ZING	0 to 240.0 oz/in ²	4200GCMG	0 to 4200 g/cm ²	-0.1V1.4MPAG	-.100 to 1.400 MPa	340ATMG	0 to 340.0 atm
1000GCMG	0 to 1000 g/cm ²	3100MMHGG	0 to 3100 mmHg	-1V14BARG	-1.00 to 14.00 bar		
760MMHGG	0 to 760.0 mmHg	3100TORRG	0 to 3100 torr continued ▲	-1V14KGCMMG	-1.00 to 14.00 kg/cm ²		
760TORRG	0 to 760.0 torr continued ▲			-1V 14ATMG	-1.00 to 14.00 atm		

Display and Keypad



Power-Up and Normal Operation

Your gauge is shipped ready to use. It was factory calibrated just prior to shipment with batteries installed. Please read these instructions and the installation precautions on previous page.

Press and hold the Power button for approximately 1 second. The display is tested.

The full-scale range is indicated.

The display test is briefly shown again.

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

Occasional flashing of the minus sign is normal and indicates the gauge is at zero pressure.

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 and resets whenever any button is pressed, unless the gauge shutoff time was set to zero for on/off operation.

Display Backlighting (BL Models Only)

Display backlighting can be turned on by momentarily pressing the Power button whenever the gauge is on. The backlighting 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.

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 is in the normal operating mode. The gauge port must be exposed to normal atmospheric pressure with no pressure or vacuum applied.

Press and hold the Zero/Clear button.

Continue to press the Zero/Clear button until 0000 is displayed.

Release the button.

The gauge is now zeroed.

Occasional flashing of the minus sign with zero pressure/vacuum is normal.

The stored zero correction is erased when the gauge is shut off.

Shut Down

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

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

If the gauge 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 battery life.

Error or Out-of-Range Indications

Attempting to zero the gauge with pressure greater than approximately 3% of full-scale pressure or vacuum applied will result in an error condition



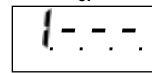
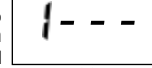
The display will alternately indicate *Err 0* and the actual pressure.

The gauge must be powered down to reset the error condition.

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.



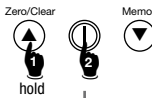
If excessive pressure is applied (112.5% over range), an out-of-range indication of 1 --- or 1.--- will be displayed depending on model.



Enter Gauge Configuration Mode

The gauge is designed to use a 4 digit pass code to enter the configuration modes. This is to prevent unauthorized changing of settings.

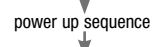
With the gauge off, press and hold the ▲ button. Then press the Power button.



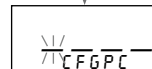
Release all buttons when the display indicates *CFG*. The gauge firmware version is also displayed.



The gauge then goes through the normal power up sequence.



The display prompts for entry of the configuration pass code (*CFGPC*), with the first underscore blinking.

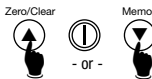
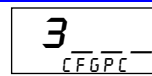


Note: The gauge will automatically revert to normal operation if no buttons are pressed for approximately 15 seconds. To cancel and return to normal operation, press and release the Power button without entering any pass code characters.

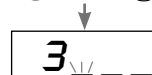
Enter Configuration Pass Code

Enter the pass code. 3510 is the factory default, but it is user-modifiable.

Use the ▲ or ▼ buttons to set the left-most digit to 3.



Press and release the Power button to index to the next position. The 3 will remain, and the second position will be blinking.



Use the ▲ or ▼ buttons to select 5.

Press and release the Power button to index to the next position. 3 5 will remain, and the third position will be blinking.



Use the ▲ or ▼ buttons to select 1.

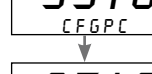
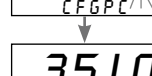
Press and release the Power button to index to the next position. 3 5 1 will remain, and the fourth position will be blinking.



Use the ▲ or ▼ buttons to select 0.

Press and release the Power button to proceed with configuration procedures.

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



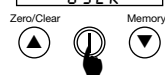
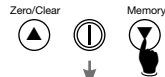
Gauge Configuration—User or Factory

Upon successful pass code entry, the upper display will be blank, and the lower section will display *USER*.

With User selected, the gauge configuration can be modified as described in the following sections.

Press and release the ▼ button if User is not displayed. The lower display will indicate *USER*.

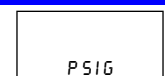
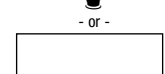
Press and release the Power button to continue with configuration.



If Factory (*FCTRY*) is selected, the user configuration will be replaced by the configuration as it left the factory.

To select Factory, press and release the ▲ button. The lower display will indicate *FCTRY*.

Press and release the Power button to restore the factory configuration and restart the gauge.

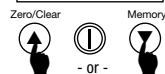
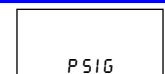


Engineering Unit Selection

With the gauge in the user configuration mode, 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 Power button to save your selection and move to the next parameter.



Auto Shutoff Time Selection

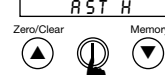
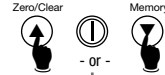
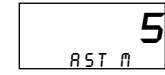
The auto shutoff time is displayed on the upper display. The lower display will indicate *AST M* if the time displayed is in minutes or *AST H* if it is in hours.

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 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 length of time is displayed, press and release the Power button to save your selection and move to the next parameter.



Memory Label Selection—M4 Versions

The M4 version allows recording pressure readings of up to four vehicle tires. While in the memory mode the peak reading is captured.

The number 1 is shown on the upper display. The lower display will indicate the label for memory 1.

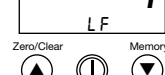
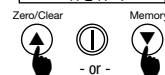
Use the ▲ and ▼ buttons to select the desired label: *MEM 1*, *LR* (left rear), *RR* (right rear), *RF* (right front), or *LF* (left front).

Each of the memory locations may be renamed as desired in any sequence. Care should be taken to avoid duplication or omission of a position.

When the desired label for memory 1 is displayed, press the Power button.

Repeat the steps for the other memory locations.

When the desired label for memory 4 is displayed, press and release the Power button to save the user configuration and restart the gauge.



Memory Label Selection—M6 Versions

The M6 version allows recording pressure readings of up to six tires. While in the memory mode the peak reading is captured. The six memory locations named MEM 1 through MEM 6 may be renamed as follows for aircraft landing gear applications.

- NLG 1 Nose landing gear tire 1
- NLG 2 Nose landing gear tire 2
- MLG 1 Main landing gear tire 1
- MLG 2 Main landing gear tire 2
- MLG 3 Main landing gear tire 3
- MLG 4 Main landing gear tire 4

Each of the memory locations may be renamed as desired in any sequence. Care should be taken to avoid duplication or omission of a position.

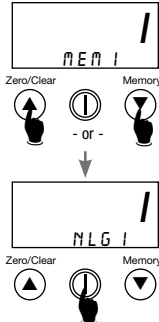
After auto shutoff time selection, the number 1 is displayed on the upper display. The lower display will indicate the label for memory 1.

Use the ▲ and ▼ buttons to select MEM 1, NLG 1, NLG 2, MLG 1, MLG 2, MLG 3, or MLG 4.

When the desired label for memory 1 is displayed, press and release the Power button.

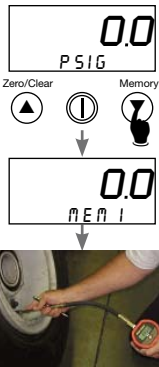
Repeat the steps for the other memory locations.

When the desired label for memory 6 is displayed, press and release the Power button to save the user configuration and restart the gauge.



Using the Memory

With the gauge powered up and in the normal operating mode, press and release the Memory button to sequence through the memory locations.



When the Memory button is pressed the gauge is in the peak hold mode. A new higher reading will replace an existing reading, but a pressure reading lower than the one displayed will not be saved.

When desired memory location is displayed, take the pressure reading. The peak reading will be captured.

Remove the gauge from the pressure source and press the memory button for the next location.

Repeat until all readings are taken.

The readings will be saved even if the gauge is shut off.



Press and release the Power button to exit the memory mode and return to live pressure readings.

Clear a Memory Location

Before clearing a memory location, make sure the gauge has no pressure applied.

Press and hold the Zero/Clear button.

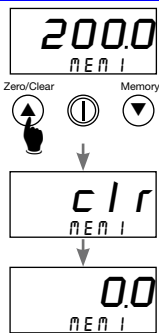
Release the button when *Clr* is displayed. The reading for the memory location indicated on the lower display will be cleared.

With a gauge reference models if no pressure is applied, the gauge will return to zero.

If pressure is applied the new pressure reading will be stored in memory.

With absolute reference models the current atmospheric pressure reading will be stored if the gauge port is open to atmosphere.

Press and release the Power button to exit the memory mode and return to live pressure readings.



Calibration

Setup and Preparation

Gauges are calibrated at the factory using equipment traceable to NIST. There is no need to calibrate the gauge before putting it into service. Calibration should only be performed by qualified individuals using appropriate calibration standards and procedures. Calibration intervals depend on your quality control program requirements, although many customers calibrate annually.

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

A vacuum pump able to produce a vacuum of 10 microns (0.01 torr or 10 millitorr) or lower is required for vacuum gauges. Warning: application of vacuum to non-vacuum models will result in damage to the sensor.

Allow the gauge to acclimate to ambient temperature for 20 minutes.

Install fresh batteries.

Entering Calibration Mode

With the gauge off, press and hold the ▼ button. Then press the 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.

Before the gauge enters the Calibration Mode, the display initially indicates _ _ _ _ with the first underscore blinking, and with *CALPC* (calibration pass code) on the lower display.

Enter the 3510 pass code as described in the Configuration Pass Code section.

Calibration Mode

The gauge enters and remains in the Calibration Mode until restarted manually or power is removed. Features not related to calibration are disabled and compound range models are set for the same engineering units for pressure and for vacuum.

The calibration may be performed in any of the available engineering units as well as percent (*PCT*).

For greatest accuracy, use the ▲ and ▼ buttons to select engineering units for calibration with highest resolution (highest number of display counts).

Press and release the Power button when the appropriate engineering units are displayed. Suggested units are listed below.

Sensor	Suggested units for calibration
5 PSI	5.000 PSI
15 PSI	775.7 MMHG or TORR
30 PSI	61.08 INHG
50 PSI	50.00 PSI
60 PSI	60.00 PSI
100 PSI	7.031 KG/CM2
200 PSI	407.2 INHG
300 PSI	610.8 INHG
500 PSI	3447 KPA
1000 PSI	6895 KPA
2000 PSI	4613 FTH20
3000 PSI	6920 FTH20
5000 PSI	5000 PSI

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

▲ and ▼ Button Operation

Each time one of the ▲ or ▼ 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 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 buttons as previously described.

Gauge Reference Pressure Gauges

Apply zero pressure by venting the gauge port to atmosphere. The character display will alternate between *ZERO* and *CAL*. Adjust for a display indication of zero using the ▲ and ▼ buttons.

Apply full-scale pressure. The character display will alternate between *+SPAN* and *CAL*. Adjust for a display indication of full-scale pressure using the ▲ and ▼ buttons.

Apply 50% full-scale pressure. The character display will alternate between *+MID* and *CAL*. Adjust for a display indication equal to 50% of full-scale pressure using the ▲ and ▼ buttons.

Gauge Reference Vacuum Gauges

Apply zero pressure by venting the gauge port to atmosphere. The character display will alternate between *ZERO* and *CAL*. Adjust for a display indication of zero using the ▲ and ▼ buttons.

Apply full-scale vacuum. The character display will alternate between *+SPAN* and *CAL*. Adjust for a display indication of full-scale vacuum using the ▲ and ▼ buttons.

Apply 50% full-scale vacuum. The character display will alternate between *+MID* and *CAL*. Adjust for a display indication equal to 50% of full-scale vacuum using the ▲ and ▼ buttons.

Absolute Reference Gauges

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

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

Apply 50% of full-scale pressure. The lower display will alternate between *+MID* and *CAL*. Press the ▲ and ▼ buttons to obtain an indication equal to 50% of full-scale pressure.

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*. Adjust for a display indication of actual applied vacuum using the ▲ and ▼ buttons.

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*. Adjust for a display indication equal to 50% of full-scale vacuum using the ▲ and ▼ buttons.

Save Calibration

Press and hold the Power 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.

User-Defined Pass Code Configuration

The factory default pass code 3510 may be changed to a different value for configuration and/or calibration.

Configuration Pass Code

With the unit off, press and hold the ▲ button to view and/or change the user configuration pass code. Then press the Power button. Release all buttons when the display indicates *CFG*.

Calibration Pass Code

With the unit off, press and hold the ▼ button to view and/or change the user calibration pass code. Then press the Power button. Release all buttons when the display indicates *CAL*.

Change Pass Code Mode

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

Note: The unit 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 pass code characters.

Enter access code 1220:

Use the ▲ and ▼ buttons to set the left-most digit to 1.

Press and release the Power button to index to the next position. The 1 will remain, and the second position will be blinking.

Use the ▲ and ▼ buttons to select 2.

Press and release the Power button to index to the next position. 1 2 will remain, and the third position will be blinking.

Use the ▲ and ▼ buttons to select 2.

Press and release the Power button to index to the next position. 1 2 2 will remain, and the fourth position will be blinking.

Use the ▲ and ▼ buttons to select 0.

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.

Change Pass Code

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

Press the ▲ or ▼ button to select the first character of the new pass code.

When the correct first character is being displayed, press and release the Power button to proceed to the next pass code character.

Repeat above until the entire pass code is complete.

To exit the User Defined Pass Code change mode, press and hold the Power button.

Release the button when the display indicates - - - - to restart the gauge.