



Models

T140-10" H₂O

T140-1 PSI

T140-200" H₂O

T140-30 PSI

T140-100 PSI

T140-300 PSI

T140-3000 PSI

Hand-held Pressure Calibrator

OPERATING INSTRUCTIONS



1. General Description

The T140 is designed to be an accurate, easy to use pressure calibrator/manometer for a variety of pressure measuring applications. Its two port differential design allows the unit to be used in both gage and differential measurements providing a high degree of versatility. The T140 is capable of storing maximum and minimum pressure readings along with a hold function to freeze a reading if desired.

1.1 Customer Service

Corporate Office:

www.martelcorp.com

e-mail: sales@martelcorp.com

Tel: (603) 434-8179 800-821-0023

Fax: (603) 434-1653

Martel Electronics

3 Corporate Park Drive

Derry, NH 03038

1.2 Installation

Remove the Packing List and verify that all equipment has been received. If there are any questions about the shipment, please call Martel at 1-800-821-0023.

When you receive the shipment, inspect the container and equipment for any signs of damage. Note any evidence of rough handling in transit. Immediately report any damage to the shipping agent.

NOTE: *The carrier will not honor any claims unless all shipping material is saved for their examination. After examining and removing contents, save packing material and carton in the event reshipment is necessary.*

1.3 Safety information

Symbols Used

The following table lists the International Electrical Symbols. Some or all of these symbols may be used on the instrument or in this manual.

Symbol	Description
	AC (Alternating Current)
	AC-DC
	Battery
	CE Complies with European Union Directives
	DC
	Double Insulated
	Electric Shock
	Fuse
	PE Ground
	Hot Surface (Burn Hazard)
	Read the User's Manual (Important Information)
	Off



On



Canadian Standards Association

The following definitions apply to the terms “Warning” and “Caution”.

- “Warning” identifies conditions and actions that may pose hazards to the user.
- “Caution” identifies conditions and actions that may damage the instrument being used.

Use the calibrator only as specified in this manual, otherwise injury and damage to the calibrator may occur.



Warning

To avoid possible electric shock or personal injury:

- Follow all equipment safety procedures.
- Do not use the calibrator if it is damaged. Before you use the calibrator, inspect the case. Look for cracks or missing plastic.
- Be sure to relieve line pressure before disconnecting the calibrator.
- Select the proper function and range for your measurement.
- Make sure the battery cover is closed and latched before you operate the calibrator.
- Do not use the calibrator if it operates abnormally. Protection may be impaired. When in doubt, have the calibrator serviced.
- Do not operate the calibrator around explosive gas, vapor, or dust.

- When servicing the calibrator, use only specified replacement parts.
- To avoid false readings, which could lead to possible personal injury, replace the battery as soon as the battery indicator appears.

3. Set-up

Before beginning, become familiar with the keypad layout and the configuration of the pressure manifold connections. Note the location of the high and low pressure ports as indicated by the label on the rear of the calibrator.

Install the 9V alkaline battery by removing the two retaining screws securing the battery compartment door. Once the battery is in place secure the battery compartment door by tightening the retaining screws. The T140 is now ready for operation.

4. Media Compatibility

The T-140 low pressure models (10", 200", 30 PSI and 100 PSI) can work with liquids and gases that are compatible with the following wetted materials:

- Silicon
- RTV
- Glass
- Ceramic
- Buna-N

The high pressure versions of the T-140 (300 PSI, 3,000 PSI) can work with any liquid or gas compatible with 316 stainless steel and nickel plated brass.

5. Operating Procedure

1. Connect the desired 1/8NPT fitting to the pressure manifold. Note that for gage (positive pressure) measurements use the **HIGH** input port. If differential measurements are being made, both ports must be used with the higher of the two pressures going into the **HIGH** input port. The 300 and 3000 PSI versions have a single port since they operate as a gauge only device.
2. Turn on power and select the desired Engineering units you wish to use. Pressing the **ENG. UNITS** key will allow you to toggle through the available selections.
3. With the calibrator open to ambient pressure press the **ZERO** key to zero the reading.
4. Apply the pressure to be measured. If the reading is unstable due to pressure fluctuations, press the **DAMP** key to dampen the reading. To disable the damping function, press **DAMP** again.
5. The T140 can be used to monitor a pressure then recall the maximum and minimum values. When pressure is introduced into the port, the pressure value is automatically stored as maximum or minimum values. As the pressure changes, the minimum and maximum values are constantly updated. These stored values can be cleared at any time by pressing the **CLEAR** key. The memory is also cleared when the calibrator is turned off.

To recall a stored value, press and hold either the **MAX** or **MIN** key, depending on the reading you wish to review. When the key is released the calibrator returns to the present reading value.

6. The T140 can be used to hold a pressure reading to be viewed after the pressure has changed. Pressing the **HOLD** key enables the hold function, pressing **HOLD** again disables it.

6. Accuracy

The T140 is checked against a NIST traceable reference before shipment to verify that it meets its accuracy specification. This accuracy is based at 25°C and error allowances must be made when operating at extreme temperatures. The specifications below list the stability and operating temperature range of the T140.

7. Specifications

Range	
(Model T140-10")	-10 to 10" H ₂ O
(Model T140-1)	-1 to 1 PSI
(Model T140-200")	-200" to 200"H ₂ O (0-7PSI)
(Model T140-30)	-14 to 30 PSI
(Model T140-100)	-14 to 100 PSI
(Model T140-300)	-14 to 300 PSI
(Model T140-3000)	-14 to 3000 PSI

Accuracy @23 ±5°C	
30/100 PSI, 200"	±0.05% F.S.
300/3000 PSI	±0.05% of F.S.
10", 1 PSI	±0.1% F.S.

Engineering Units	PSI, in H ₂ O, cm H ₂ O, ft H ₂ O, m H ₂ O, BAR, in Hg, mm Hg, cm Hg, KPa, m BAR, Kg/cm ² , Torr, ATM
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Operating Temperature	0 to 50°C
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Storage Temperature	-20 to 60°C
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Stability	0.01% F.S./°C outside of 23°C ± 5°C
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MAX Overpressure	2x for ranges >100 PSI 3x for ranges <30 PSI
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Power	9V alkaline battery
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Case Size	1.43" x 3.15" x 5.7"
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Weight	12 oz.
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8. Maintenance

Generally, with normal usage, this calibrator should hold its rated specifications for at least 12 months. Beyond this, it should remain within 1.5X of its specification over its useful life, provided it is not abused or tampered with. If after the stated warranty period, the device falls out of calibration, it can be returned to Martel for re-calibration. Please call 1-800-821-0023 for pricing and return information.

9. Warranty

Martel warrants all products against material defects and workmanship for a period of twelve (12) months after the date of shipment.

Problems or defects that arise from misuse or abuse of the instrument are not covered. If any product is to be returned, a "Return Material Authorization" number must be obtained by calling our Customer Service Department at 1-800-821-0023.



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