

Transmation

The Transmation CheckMate 600 Pressure Calibrator is a precision electronic instrument to accurately measure and display pressure in all popular engineering units. In addition, the hand-held unit tests and calibrates pressure switches.

Top-mounted NPT fittings allow simple installation to all common process connections. Easily replaceable AA alkaline batteries provide extended service life. Selectable engineering units replace a variety of gauges. Four front panel keys allow fast, simple operation. The full-function five-digit liquid crystal display automatically indicates the measured pressure mode, pressure units, and error conditions.

Do not discard these instructions. The information provided in this document is essential to safe, proper equipment operation and maintenance.

Pressure Calibrator CheckMate™ 600



- Fast, accurate results
- Selectable engineering units
- Pressure switch testing built-in
- Accuracy of 0.05%+ 1 digit
- Five digit resolution
- 100 hour battery life with automatic shut-off
- Easy to carry, easy to use

Safety considerations

It is imperative that all system pressure is relieved prior to making any connections or disconnections. Failure to relieve system pressure could result in serious personal injury and/or equipment damage. Always exercise standard physical protection practices (i.e., eye protection, gloves, protective clothing, etc.) when working around pressure devices.

Connections

Connect the CheckMate 600 to the line or device under test via the pressure input port(s) at the top of the case. External air supply fittings must be installed in the pressure input port(s) bulkhead fitting. On the CheckMate 600 this is a 1/8"-27 NPT female thread.

To install the fitting:

- 1) Wrap the supply fitting threads with two turns of Teflon tape.
- 2) Securely tighten the supply fitting. Use a 5/8" open-end wrench on the differential input port or a 7/8" open-end wrench on the isolated port to prevent it from rotating while the fitting is being tightened.

Operations

The CheckMate 600 has two operating modes:

- **Pressure Measurement mode:** In this mode, pressure is measured and displayed. This is the default mode when the calibrator is turned on unless another mode is specified.
- **Setup mode:** This mode is enabled by pressing and holding the Reset key while turning on the calibrator. Release the Reset key when AUTO appears on the display. To exit the Setup mode and return to the Pressure Measurement mode, press the Reset key. This mode permits the Battery Save and Zero Key Enable features to be turned on or off (the factory default is ON for both). When the Setup mode is enabled, AUTO and the current state of the Battery Save feature (ON or OFF) will be displayed. Press the Units key to toggle the Battery Save feature on or off. Press the Reset key to save the displayed Battery Save state and return to the Pressure Measurement mode. Alternately, press the Zero key to save the displayed Battery Save state and display the current state of the Zero Key Enable feature (ON or OFF). Press the Zero key to toggle the Zero Key Enable feature on or off. Press the Reset key to save the displayed Zero Key Enable state and return to the Pressure Measurement mode.

Replacing the batteries

The CheckMate 600 is powered by four AA batteries. When battery voltage is low, BATTERY will appear on the display. To replace the batteries:

- 1) Remove the two screws from the lower rear of the calibrator.
- 2) Remove the rear cover.
- 3) Remove the batteries from the battery clips.
- 4) Install fresh AA batteries, with the proper polarity, in the battery clips. (Alkaline batteries provide the longest service life.)
- 5) Install the rear cover.
- 6) Replace the two screws on the rear of the calibrator.

Function keys

The CheckMate 600 keypad has four function keys

- **Power key:** This key turns the calibrator on or off. When the calibrator is turned on, the measured pressure will be displayed. The engineering units that were in use when the calibrator was turned off will be indicated. If the Battery Save feature is enabled via the Setup mode, the calibrator will turn itself off approximately 15 minutes after the last key is pressed.
- **Zero key:** If this key is pressed while the Pressure Measurement mode is enabled, the current pressure is stored as the "zero" value. This value is then subtracted from all subsequent display readings. This value is retained even when calibrator power is turned off. If this key is pressed immediately after pressing the Reset key, the Factory "zero" value is recalled. In Setup mode, pressing this key will toggle the Zero Key Enable feature on and off.
- **Units key:** This key scrolls through the list of available engineering units. The display will update to indicate the selected units and the displayed pressure value will be converted to the selected engineering units. If the selected engineering units are not appropriate for the calibrator's range (i.e., mm H₂O on a 0-2000 psi calibrator), five dashes ("-----") will appear on the display. The selected engineering unit will remain in use until a new one is selected, even when calibrator power is turned off. If this key is pressed while the Setup mode is enabled, the Battery Save feature will toggle on and off.
- **Reset key:** When the switch test input changes state, the display will "freeze" to lock in the pressure reading. Pressing this key resumes normal calibrator operation. If this key is pressed immediately before pressing the Zero key, the Factory "zero" value is recalled.

Display

The five-digit liquid crystal display indicates the pressure value, various operating legends, and error messages. In Pressure Measurement mode, the measured pressure value and the selected engineering units will be displayed. When in Setup mode, SETUP will be displayed. When an error condition is detected, a fault legend will be displayed. BATTERY will be displayed if the battery voltage is low. OVR will appear on the display instead of the engineering units if the input pressure is outside the range of the calibrator. ERROR will be displayed if the input pressure is too large to be displayed. If the selected engineering units are inappropriate for the calibrator's range (i.e., mm H₂O on a 0-2000 psi calibrator), five dashes ("-----") will be displayed.

Switch testing

The switch test feature is a "dry circuit" test. No external power should be connected to the switch being tested. To use the switch test feature:

- 1) Connect the electrical contacts of the switch being tested to the jacks on the front of the CheckMate 600.
- 2) Connect the pressure input of the switch being tested to the pressure input port on the CheckMate 600 and to a source of pressure.
- 3) Slowly change the pressure.
- 4) The display will continuously indicate the pressure until the switch opens or closes. When the switch changes state, the display will freeze, indicating the pressure just as the switch changed state. The display will indicate OPN if the switch is open or CLS if the switch is closed.
- 5) Press the Reset key to return the CheckMate 600 to normal operation.

Ranges and resolution

Pressure Range psi	Full Scale Pressure kPa	Full Scale Pressure mBAR	Full Scale Pressure BAR	Full Scale Pressure kgf	Full Scale Pressure Inches Hg	Full Scale Pressure mm Hg	Full Scale Pressure Inches H ₂ O	Full Scale Pressure mm H ₂ O
0.3600*	2.4911	24.91	0.0249	0.0254	0.7356	18.685	10.000	254.00
10.000*	70.00	700.0	NA	NA	20.000	500.0	270.00	7000
30.000*	200.00	2000.0	2.0000	2.0000	60.00	1500.0	830.0	20,000
100.00*	700.0	7000	7.000	7.000	200.00	5000	2700.0	NA
300.00	2000.0	20,000	20.000	20.000	600.0	15,000	8300	NA
1000.0	7000	NA	70.0	70.0	2000.0	NA	NA	NA
2000.0	14,000	NA	140.00	140.00	4000.0	NA	NA	NA

*Non-isolated sensors

Product Specifications

Sensor Types	10-100 psi ranges, differential, non-isolated 300-2000 psi ranges, isolated
Calibrated accuracy	0.36 psi (10" H2O): $\pm 0.25\%$ of full scale $\pm 0.22\%$ of full scale/ $^{\circ}\text{C}$ 10 to 2000 psi ranges: $\pm 0.05\%$ of full scale ± 1 LSD
Switch test (dry circuit only)	Display will freeze when switch test input changes state; normal operation resumes when Reset key is pressed
Maximum indicated pressure	At least 105% of full scale
Overload safe	200% of full scale on pressure input; 250 VAC on switch test input
Operating temperature	-9 $^{\circ}\text{C}$ to 50 $^{\circ}\text{C}$ (15 $^{\circ}\text{F}$ to 122 $^{\circ}\text{F}$)
Storage temperature	-28 $^{\circ}\text{C}$ to 85 $^{\circ}\text{C}$ (-20 $^{\circ}\text{F}$ to 185 $^{\circ}\text{F}$)
Media compatibility	0.36 to 100 psi ranges: clean, dry air 300 to 2000 psi ranges: any gas or liquid compatible with 316 stainless steel
Pressure connection	1/8"-27 NPT female bulkhead fitting
Engineering units	psi, KPa, Bar, mBar, kgF/cm ² , mm Hg, inches Hg, mm H ₂ O*, inches H ₂ O* (*Reference temperature = 20 $^{\circ}\text{C}$ [68 $^{\circ}\text{F}$])
Zero adjustment	Via front panel pushbutton, $\pm 10\%$ of full scale
Display	5-digit LCD with status indicators
Power	Four AA alkaline batteries
Battery life (typical)	100 powered hours; automatic shutoff after 15 minutes (user defeatable)
Size (HWD)	170 mm x 82 mm x 44 mm (6.75" x 3.25" x 1.75")
Weight	0.43 kg (15 oz.)

Warranty

Transmation products are warranted to be free from defects in material and workmanship (excluding fuses, batteries and leads) for a period of one year from the date of shipment. Warranty repairs can be obtained by returning the equipment prepaid to our factory. Products will be replaced, repaired, or adjusted at our option. *Transmation gives no other warranties, including any implied warranty of fitness for a particular purpose.* Also, Transmation shall not be liable for any special, indirect, incidental or consequential damages or losses arising from the sale or use of its products.

Ordering information
CheckMate 600 Pressure Calibrator

Part No. _____
23415P - _____*
*Insert range

Included with each CheckMate 600 are:
Test leads with mini-banana plugs and alligator clips
Carrying Case

TRANSCAT®



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