



The Transmation QuikCal 390 Calibrator is a precision electronic instrument designed to accurately measure and display pressure and mA signals. In addition, the hand-held unit has built-in switch test capability.

A bottom mount plug-in pressure module with NPT fittings allows simple connection to the process for calibration. Switch input and mA electrical connections are available above the display. Five easily replaceable AA alkaline batteries provide extended service life with minimal downtime. Selectable units allow configuration to all common engineering units.

The QuikCal 390 is one of Transmation's integrated family of process measurement instruments. Pressure modules may be interchanged with other calibrators including the QuikCal 190 family of multifunction calibrators with automatic pumps.

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

Pressure Calibrator QuikCal™ 390



- **Fast, accurate results**
- **Selectable engineering units**
- **Test pressure switches**
Visual indication of open/close trips
- **Read with 0.001 mA resolution**
Check out your P/I transducers
- **Interchangeable modules**
Swap with other QuikCal calibrators

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

The QuikCal 390 accepts one Transmation Model 90 module internally on the bottom of the case. Additionally, a second module can be plugged in externally via the Transmation Modpack 91. The Modpack attaches to the QuikCal 390 connection port on the left side of the unit via an umbilical cord with a Mini-DIN connector.

Electrical connections are made with the supplied double insulated test-leads or equivalent test leads.

For pressure connections, external supply fittings must be installed in the pressure port(s). This port contains a 1/8"-18 NPT female thread.

1. Wrap the supply fittings with two turns of Teflon tape or use pipe dope.
2. Securely tighten the supply fitting. Use a 5/8" open-end wrench on the module port to prevent it from rotating while the supply fitting is being tightened.

Function keys

The QuikCal 390 keypad contains 6 function keys:

- On/Off key: This key turns the calibrator on or off. When the calibrator is turned on, it will display a Transmation 390 splash screen. If a module has been plugged in, the splash screen will be followed by the module range. Then the calibrator will change to normal operating mode and display the current pressure and mA readings. The selected engineering units will be remembered the next time the calibrator is turned on.
- Units key: This key scrolls through the list of available engineering units. Once the desired units have been selected, the calibrator will display the new units and the displayed pressure value will be converted. If the selected range is not appropriate for the module range (i.e. mm H₂O on a 2000 PSI module), six stars (*****) will be displayed.
- Input key: This key will toggle from the internal module to the external module and vice-versa. The module range will be displayed along with the symbol "I" for internal or "R" for remote module.
- Zero key: When this key is pressed, the current module value is stored as the "zero" value. This value is then subtracted from all subsequent readings.
- Reset key: This key will "unfreeze" the display after a switch test state change has frozen the display. When the display is frozen, the letters "SW" appear in the upper right hand corner of the display.
- mA / % key: This key will toggle the mA input display value on the bottom line from mA to % of 4-20 mA and % of 10-50 mA engineering units.

Replacing the batteries

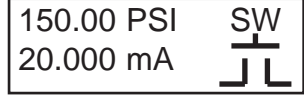
The QuikCal 390 is powered by five AA batteries. When the battery voltage is low, it will be indicated on the display with a battery symbol next to the switch display.

To replace the batteries:

1. Remove the 2 screws from the battery compartment at the upper rear of the calibrator.
2. Remove the battery cover.
3. Remove the batteries from the battery clips.
4. Install fresh AA batteries. (Check the correct orientation.)
5. Install battery cover.
6. Install the two screws to hold the door firmly closed.

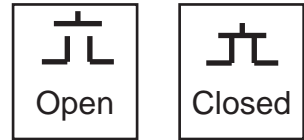
Display

The display is divided into two lines. Both lines are divided into a process signal display field on the left side and a status indicator field on the right side.



The process signal field on the top line shows the signal from the module, while the bottom line shows the mA input signal.

The top line status indicator is normally blank. It shows the letters "SW" when the display has been frozen due to a state change on the switch input. The bottom indicator field shows the status of the switch input.



If a pressure input exceeds the limit of the pressure module the display will show six stars (*****)

A battery symbol will be shown to the left of the switch symbol if the battery needs to be replaced.

Switch testing

The switch test feature is a "dry circuit" test. No 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 labeled with the switch symbol.
2. Connect the pressure input of the switch to a pressure source and to the input port on the pressure module.
3. Slowly ramp up 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 and the letters "SW" will be displayed.
5. Record the "trip" value and then press the RESET key.
6. If required, slowly bleed off some of the pressure to repeat step 4.
7. Record the "Reset" value and check for hysteresis, if necessary.
8. Push the RESET key to return the calibrator to its normal function.

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

Pressure ranges & resolution	Refer to the QuikCal 90 manual
Pressure accuracy	Refer to the QuikCal 90 manual
Pressure engineering units	Pressure Engineering Units: PSI; Pa; Kpa; Mpa; Bar; mBar; Atm; Kg/cm; mm Hg; in HG @ 0°C and 15°C; in H2O @ 4°C, 15°C, 20°C, and 23°C; mm H2O @ 4°C and 23°C; cm H2O @ 4°C and 23°C
Electrical engineering units	mA; % of 4-20 mA; % of 10-50 mA
Electrical input connections	Double insulated, full-size Banana jacks
mA input range	1-51 mA
mA resolution	0.001 mA
mA accuracy	±0.01%FS
Temperature effect	0.005% /°C (mA Input only)
Switch test	Dry Contacts Only (Display will freeze when switch test inputs change state. Press RESET key to resume normal operation.)
Operating temperature	-10°C to 50°C (13°F to 122°F)
Storage temperature	-30°C to 85°C (-22°F to 185°F)
Zero adjustment	Via front panel pushbutton (module only)
Display	2-line, 16 character alpha-numeric display
Power	Five AA alkaline batteries
Size (HWD)	165mm x 81mm x 58mm (6.5" x 3.25" x 2.25")
Weight	0.4 kg (14.5 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

QuikCal 390 Pressure Calibrator

Part No.

390

Included with each QuikCal 390 are:
Test leads with banana plugs and alligator clips
Carrying Case

Transmation

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