

**PRESSURE MEASUREMENT/CONTROL**

Data Sheet No. CDS8100C

**QUARTZ  
PRESSURE CALIBRATOR  
MODEL 8100**

**Accuracy to 0.007% FS + 0.003% R  
Precision to 0.003% FS**



**FEATURES**

- Quartz Resonator Transducer
- Interchangeable Transducers
- Custom Pressure Ranges
- Full scale ranges from 15 to 1500 psi
- High Resolution (up to 1 ppm)
- 0.003% FS control stability
- Four pressure rates
- Color Touch Screen
- CE Compliant

**OPTIONS**

- Two Quartz Transducers
- Multiple Ranges for each Transducer
- Gauge Emulation with barometric pressure display

**DESCRIPTION**

For three decades, Mensor has been dedicated to the design and manufacture of the finest pressure controllers/calibrators that incorporate the latest technological advances to provide the best value to our customers. The **Model 8100** utilizes quartz resonator transducers to provide high accuracy with excellent long term stability.

Our new, color, touch-screen is an innovation designed to improve user interface. All functions are clearly displayed on a selection of screens. Operation is amazingly simple and intuitive.

A new feature of this class of pressure test equipment is the "quick change" transducer in the pneumatic module, which allows fast removal and installation for re-calibration. Open the hinged front panel to remove or replace the transducer module in seconds, minimizing downtime.

Pressure control is a proven proprietary Mensor design. This design provides a very precise "control stability" from zero to full span for both low and very high pressures.

# 8100 SPECIFICATIONS

## GENERAL SPECIFICATIONS

<i>Accuracy</i>	0.007% FS + 0.003% R
<i>Precision</i>	0.003% FS
<i>Calibration Stability</i>	0.007% FS + 0.003% R for 360 days typical (after zeroing)
<i>Pressure Ranges</i>	(PSI ranges are listed in the tables below)

### Gauge Emulation - Using Barometric Reference

Bi-Directional Range-MAX	Bi-Directional Range-MIN	Zero Based Range-MA	Zero Based Range-MIN	MIN Span
-15 to 1500	-15 to 485	0 to 1500	0 to 500	500
-15 to 1085	-15 to 318	0 to 1085	0 to 333	333
-15 to 535	-15 to 152	0 to 535	0 to 267	167
-15 to 315	-15 to 85	0 to 315	0 to 100	100
-15 to 205	-15 to 52	0 to 205	0 to 67	67
-15 to 95	-15 to 18	0 to 95	0 to 33	33
-15 to 40	-15 to 2	0 to 40	0 to 17	17
-15 to 18	-15 to -5	0 to 18	0 to 10	10
-15 to 13	-15 to -7	0 to 13	0 to 8	8
-15 to 2	-15 to -10			5

### Absolute

MAX Range	MIN Range	MIN Span
0 to 1515	0 to 500	500
0 to 1100	0 to 333	333
0 to 550	0 to 167	167
0 to 330	0 to 100	100
0 to 220	0 to 67	67
0 to 110	0 to 33	33
0 to 55	0 to 17	17
0 to 33	0 to 10	10
0 to 27.6	0 to 8	8
0 to 17	0 to 5	5

Each row represents one transducer. Three turndowns can be configured for each transducer as long as the min and max range and the span fall within the limitations given.

*Pressure Units Available* psi, inHg@0C, inH2O@4C, inH2O@20C, Bar, mBar, mmHg@0C, cmHg@0C, Pascal, hPa, kPa, Mpa, cmH2O@4C, cmH2O@20C, user1, user2

*Resolution* up to 1 ppm depending on range

*Over Pressure Limit* protected by relief valves

*Temperature Compensation* 15°C to 35°C

*Warm-up* <15 minutes depending on environment

*Reading rate* typically 32 readings per second

*Response Time* 0.33 seconds for FS step

*Orientation* negligible; can be removed with re-zeroing

*Communications* IEEE-488.1 and RS-232. LabVIEW®<sup>1</sup> drivers are available.

*Size* 17.75" wide x 7" high x 17.50" deep (45.085 cm x 17.78 cm x 44.45 cm); Standard rack ears add 1.25" width x 1.75" depth (3.175 cm x 4.445 cm).

*Weight* 36 lbs. (16.33 kg)

(Continued from General Specifications)

<i>Media Compatibility</i>	Non-corrosive gases compatible with aluminum, brass, 316 SS, teflon, urethane, Silicone RTV®, silicone grease, PVC and ceramics
<i>Fittings</i>	7/16-20 SAE/MS (female). 1/8 female NPT adapters provided
<i>Power</i>	90-230 VAC, 50-60 Hz, 90 VA max.
<i>Options</i>	Carrying Case
<i>Warranty</i>	One Year

<sup>1</sup>LabVIEW® is a trademark of National Instruments Corporation

## CONTROL SPECIFICATIONS

*Source Pressure* Instrument air or dry nitrogen at pressure equal to 10% over range of highest pressure transducer or 50 psi over highest pressure transducer in instrument, whichever is less.

*Exhaust Pressure* Atmospheric exhaust for gauge pressure control above 0.05 psig. Vacuum pump required for sub-atmospheric pressure control.

*Stability of Controlled Pressure* Better than ±0.003% FS with pressure stable indication available on display or via IEEE-488 or RS-232.

*Minimum Controlled Pressure* 0.5 psia

*Slowing Time* 25 seconds typical between points above atmospheric pressure. External volume will lengthen stated time.

**Accuracy** includes the following uncertainties in the pressure reading: repeatability, pressure hysteresis, creep, linearity, and temperature effects over the compensated range.

**Precision** is the closeness of agreement between independent test results obtained under stipulated conditions.

Per ANSI/NC SL Z540-2-1997 (U.S Guide to the Expression of Uncertainty in Measurement) that "*the term precision should not be used for accuracy*".

These models are calibrated with primary standards traceable to NIST. The calibration program at Mensor is compliant to ANSI/NC SL Z540-1-1994.

For more details on calibration of Mensor products see Technical Note entitled "*Accuracy Specifications for Mensor Products*" (available on our web site [www.mensor.com](http://www.mensor.com)).

*Since product improvement is a continuous process at Mensor, we reserve the right to change specifications without notice.*