

# PRESSURE MEASUREMENT/CONTROL

Data Sheet No. CDS8204E

**DUAL OUTPUT  
PRESSURE CONTROLLER  
MODEL 8204**

**Accuracy to 0.010% FS  
Precision to 0.003% FS**



## FEATURES

- 0.010% FS accuracy (0.025% FS optional)
- Full scale ranges from 0.36 to 1500 psig, or 5 to 1500 psia
- High Resolution (up to 1 ppm)
- 0.004% FS control stability
- Selectable pressure units
- IEEE-488 & RS-232 communications
- CE Compliant
- Virtual Channel Display Option

## DESCRIPTION

The Mensor **Model 8204** is a precision pressure controller/calibrator with dual pneumatic outputs. The Model 8204 is ideally suited for pressure calibration applications where it is beneficial to have two simultaneous pneumatic outputs from a single instrument. The maximum pressure on either channel is 1500 psi. Any full scale pressure range from 0.36 to 1500 psig or 5 to 1500 psia can be specified.

Absolute, gauge, bidirectional or vacuum ranges are available on either channel. While there is a common CPU (electronic module), each channel has an individual pressure transducer, pressure regulator, manifold and solenoid valves. An optional dual GPIB interface permits simultaneous communication to both channels. An optional remote transducer can be added to each channel to further extend the capabilities of the 8204.

## 8204 SPECIFICATIONS

### GENERAL SPECIFICATIONS

<i>Accuracy</i>	0.010% FS
<i>Precision</i>	0.003% FS
<i>Calibration Stability</i>	Zero and Span better than 0.010% FS for 180 days typical
<i>Pressure Ranges - Standard</i>	
psia:	0-5 to 0-1,500 max
psig:	0-0.36 to 0-1,500 max
<i>Pressure Range - Bidirectional, Vacuum</i>	
psig:	-1 to +1 min, -atm to 1,500 max
<i>Pressure Units Available</i>	psi, inHg @ 0°C and 60°F, inH <sub>2</sub> O @ 4°C, 20°C and 60°F, ftH <sub>2</sub> O @ 4°C, 20°C and 60°F, mTorr, inSW @ 0°C, ftSW @ 0°C, ATM, bar, mbar, mmH <sub>2</sub> O @ 4°C, cm H <sub>2</sub> O @ 4°C, MH <sub>2</sub> O @ 4°C, mmHg @ 0°C, cmHg @ 0°C, Torr, hPa, kPa, Pa, D/cmsq, G/cmsq, Kg/cmsq, mSW @ 0°C, OSI, PSF, TSF, TSI, μHg @ 0°C. All seawater units are 3.5% salinity.
<i>Resolution</i>	up to 1 ppm depending on range
<i>Over Pressure Limit</i>	protected by relief valves
<i>Temperature Compensation</i>	15°C to 45°C
<i>Warm-up</i>	45 minutes depending on environment
<i>Reading Rate</i>	typically 30 readings per second
<i>Response Time</i>	0.2 seconds for FS step
<i>Orientation Effect</i>	negligible
<i>Communications</i>	IEEE-488.1 and RS-232. LabVIEW® <sup>1</sup> drivers are available.
<i>Size</i>	17.05" (43.31 cm) x 6.97" (17.70 cm) x 20" (51 cm)
<i>Weight</i>	50 lbs. (22.68 kg)
<i>Media Compatibility</i>	Clean, dry, non-corrosive gases. No oxygen.
<i>Fittings</i>	7/16-20 SAE/MS (female), 1/8 female NPT adapters provided
<i>Power</i>	90 to 264 VAC, 50 to 60 Hz, 175 VA max
<i>Options</i>	Rack Mount Kits Carrying Case Remote Transducers
<i>Warranty</i>	One Year

### CONTROL SPECIFICATIONS

<i>Source Pressure</i>	Instrument air or dry nitrogen at pressure equal to FS plus 5 psi or 110% of FS.
<i>Exhaust Pressure</i>	Atmospheric exhaust for gauge pressure control above 0.05 psig. Vacuum pump required for sub-atmospheric pressure control.
<i>Reference Pressure</i>	Atmospheric for gauge models. Permanent vacuum for absolute models.
<i>Stability of Controlled Pressure</i>	Better than ±0.004% FS with pressure stable indication available on display or via IEEE-488 or RS-232
<i>Minimum Controlled Pressure</i>	Exhaust pressure plus 0.05% FS or 0.025 psia, whichever is greater
<i>Settling Time</i>	15 seconds (typical) after the slew time as indicated above (for pressure to remain within ±0.010% FS of the set control point). External volume will lengthen the 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.*

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