

# Model 9414 - 4 Channel Controller + Model 9415 System

Mensor Data Sheet Model 9414 / 9415 • 12/2012

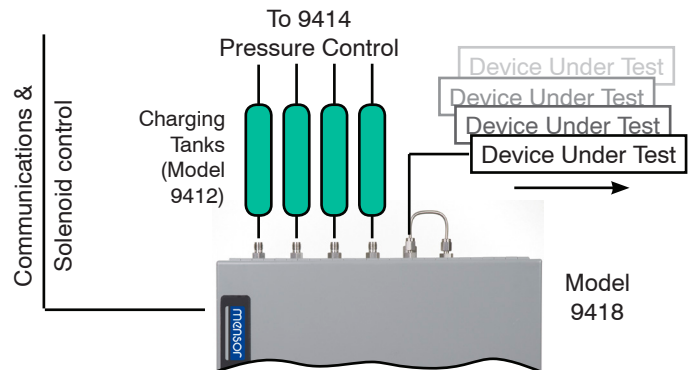


## Applications

- Pressure sensor manufacturers
- High-Speed testing of pressure transducer / transmitters
- High-Speed calibration of pressure sensing devices
- Rapid pressure delivery to test chambers



## Model 9414 - Quad Controller



## Features

- Ranges to 1500 psi
- Rapid control and replenishment of large volumes
- Absolute, gauge, bi-directional or vacuum
- Uncertainty: 0.01% IntelliScale-50, 0.01%FS, 0.025%FS
- Touchscreen user interface
- Dynamic temperature compensation from 15°C to 45°C
- RS-485 and discrete communications

## Description

The Model 9414 is a four or two channel pressure controller that is optimized for controlling large volumes and constantly replenishing small amounts of air at a rapid rate. This special Controller's primary function is to serve as the heart of a system that is designed to quickly regenerate pressure into a set of pressure volumes. The volumes are used to quickly deliver controlled pressure to test fixtures in high speed production environments. As a stand alone unit the 9414 can serve as an independent 4 or 2 channel pressure controller.

## External system control / monitoring

The Model 9414 can control of up to 8 solenoids valves for external pressure channeling. Switching signals are provided through a 25 pin D-sub connector that also contains RS-485 communications. The solenoids control pressure into remote point-of-use transducers that sense the pressure directly at a device under test. The pressure at the remote transducers is communicated via the RS-485 signal. This functionality is used in conjunction with the Model 9415 as follows:

## Model 9415 System

### System

The Model 9415 System, consisting of Model 9414 (controller), the Model 9418 (remote control and sensing module) and the Model 9412 (air storage tanks) rapidly controls, replenishes and monitors four pressures delivered directly to a device under test in a high-speed production/testing application. A fifth pressure point (zero) can be measured by venting the system. The complete system, is mounted in an equipment rack. Vacuum pumps and boosters can also be included. System components are provided to meet customer specified volumes and the speed that is necessary for the individual production application. On-site startup assistance is also available.



Model 9415

## Specifications

<b>Pressure ranges</b>	psi	Gauge: to 1500 psi Absolute: to 1500 psia
<b>Pressure types</b>		Absolute or gauge
<b>Total uncertainty</b>		<b>0.01%IS-50</b> = 0.01% of reading from 50% to 100% of range, 0.005% of full scale at 50% of range and below. Optional: 0.01%FS or 0.025%FS
<b>Calibration interval</b>	days	365
<b>Compensated temp range</b>	°C	15...45
<b>Resolution</b>		7 significant digits
<b>Operating temp</b>	°C	0...50
<b>Storage temp</b>	°C	-20...70
<b>Pressure units</b>		psi, in.Hg (at 0°C), in.Hg (at 60°F), in.H <sub>2</sub> O (at 4°C), in.H <sub>2</sub> O (at 20°C), In.H <sub>2</sub> O (at 60°F), ft.H <sub>2</sub> O (at 4°C), ft.H <sub>2</sub> O (at 20°C), ft.H <sub>2</sub> O (at 60°F), mtorr (at 0°C), in. seawater (at 0°C), ft. seawater (at 0°C), atm, bar, mbar, mm H <sub>2</sub> O (at 4°C), cm H <sub>2</sub> O (at 4°C), m H <sub>2</sub> O (at 4°C), mm Hg (at 0°C), cm Hg (at 0°C), torr, kPa, Pa, Dynes/cm <sup>2</sup> , g/cm <sup>2</sup> , kg/cm <sup>2</sup> , m seawater, oz/in. <sup>2</sup> , psf, tsf, % full scale, microns Hg (at 0°C), tsi, hPa, MPa
<b>Pressure ports</b>		Pneumatic interfaces - 7/16-20 SAE for pressure and reference. Reference sealed on absolute units.
<b>Parts exposed to pressure media</b>		Aluminum, brass, 316 SS, Buna-N, Viton, Silicone grease, Silicone rubber, nylon, ceramics, glass, silicon
<b>Calibration media</b>		Clean, dry Nitrogen or air
<b>Overpressure Limit</b>	%FS	120
<b>Air humidity</b>	RH	0-95%RH, non-condensing
<b>Warm-up time</b>	min	approx. 15 minutes to rated accuracy
<b>Remote Transducer Communication</b>		RS-485 / 19200 baud
<b>System Communications</b>		RS-232, RS-485 at 5700 baud, 8,1,N
<b>Power supply</b>		90 to 260 VAC, 50 or 60 Hz.
<b>Calibration</b>		NIST traceable calibration certificate included

Represented by:



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

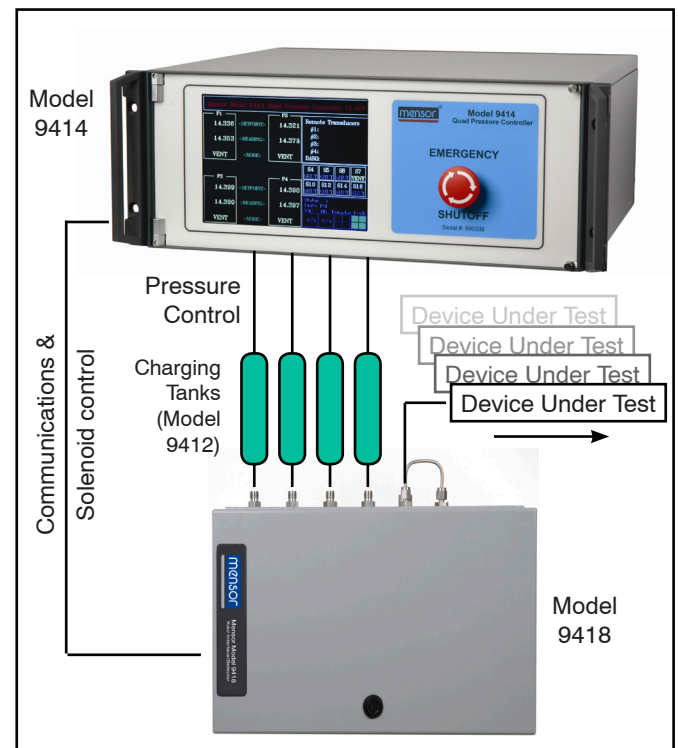
## Model 9415 Turnkey Engineered System

The Model 9415 System has customer specified pressure ranges and volumes to fit specific customer requirements for stability and speed. The System consists of a Model 9414 - 4 or 2 channel controller, a Model 9412 charging tank set, and a Model 9418 which contains solenoids, point of use transducers and a manifold. Together the components rapidly deliver pressure sequentially to a device under test that is delivered to a test fixture in a high speed production environment.

Consultation with a Mensor Systems Specialist is required to review and evaluate requirements before an order can be entered.

Review the following list when considering a 9415 system:

1. How many pressure calibration points are required?
2. What is the required replenishment / control speed?
3. What is the required control stability?
4. Will a pressure booster be required?
5. Will there be any auxiliary equipment within the system?



Model 9415 System Components

**Total Uncertainty** is the combined uncertainties of all components of a measurement at the approximate 95% confidence level (K=2). Total uncertainty includes the uncertainties of the following: calibration standard, repeatability, pressure hysteresis, creep, linearity, and temperature effects over the compensated temperature range.

The calibration program at Mensor is accredited by A2LA as complying with both the ISO/IEC 17025:2005 and the ANSI/NCSL Z540-1-1994 standards. All Mensor primary standards are traceable to NIST. Mensor Corporation is registered to ISO9001:2008.



**Mensor Corporation \* 201 Barnes Drive \* San Marcos, Texas 78666  
512.396.4200 \* 800.984.4200 \* sales@mensor.com \* www.mensor.com**